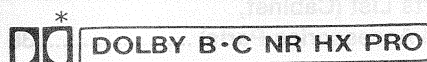


# Service Manual

dbx\*/Dolby NR Equipped  
Stereo Cassette Deck

Cassette Deck  
**RS-B608R**



## Color

(S) ... Silver Type  
(K) ... Black Type



## Area

Color	Area
(S) (K)	(E) ..... Continental Europe.
(S) (K)	(EK) ..... United Kingdom.
(S) (K)	(EG) ..... F.R. Germany.
(S) (K)	(EH) ..... Holland.
(S) (K)	(XA) ..... Asia, Latin America, Middle Near East, Africa and Oceania.
(S) (K)	(XL) ..... Australia.
(S) (K)	(XB) ..... Saudi Arabia.

## SPECIFICATIONS

### ■ CASSETTE DECK SECTION

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Heads	
REC/PLAY	Solid Permalloy head
Erasing	Double-gap ferrite head
Motors	Electronically controlled DC motor
Recording system	AC bias
Bias frequency	80 kHz
Erasing system	AC erase
Tape speed	4.8 cm/sec. (1-7/8 ips)
Frequency response	
METAL	20 Hz~19 kHz
	30 Hz~18 kHz (DIN)
CrO <sub>2</sub>	20 Hz~18 kHz
	30 Hz~17 kHz (DIN)
NORMAL	20 Hz~17 kHz
	30 Hz~16 kHz (DIN)
Dynamic Range (with dbx on)	110 dB (1 kHz)
Max. Input level improvement (with dbx on)	10 dB
S/N (signal level = max recording level, CrO <sub>2</sub> type tape)	
dbx on	92 dB (A weighted)
Dolby C NR on	74 dB (CCIR)
Dolby B NR on	66 dB (CCIR)
NR off	56 dB (A weighted)

### Wow and flutter

0.08% (WRMS)  
±0.2% (DIN)

### Fast Forward and Rewind Time

Approx. 100 seconds with C-60 cassette tape

### Input sensitivity and impedance

MIC	0.25 mV/400 Ω~10 kΩ
LINE	60 mV/47 kΩ

### Output voltage and impedance

LINE	400 mV/3 kΩ
HEADPHONES	30 mV/8 Ω

### ■ GENERAL

#### Power consumption

22W

#### Power supply

##### For continental Europe

AC 50 Hz/60 Hz, 220V

##### For United Kingdom and others

AC 50 Hz/60 Hz, 110V/127V/220V/240V

#### Dimensions (W×H×D)

430 × 114.5 × 287 mm  
(16-15/16" × 4-1/2" × 11-5/16")

#### Weight

4.3 kg (9.5 lb.)

#### Note:

Specifications are subject to change without notice.

Weight and dimensions are approximate.

\* HX Pro headroom extension originated by Bang Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation.

"DOLBY", the double-D symbol, and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

\*\* The term dbx is a registered trademark of dbx Inc.

# Technics

Matsushita Electric Industrial Co., Ltd.

Central P.O. Box 288, Osaka 530-91, Japan

## CONTENTS

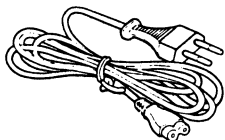
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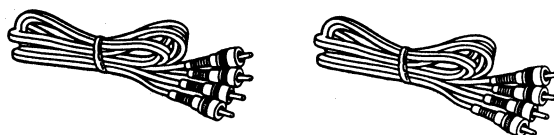
## ACCESSORIES

### • AC power supply cord .....

SJA171	(E, EH, EG)
SFDAC05G02	(EK)
SJA173	(XL)
SJA168-1	(XA)
SJA183	(XB)
SJA170	(MC)

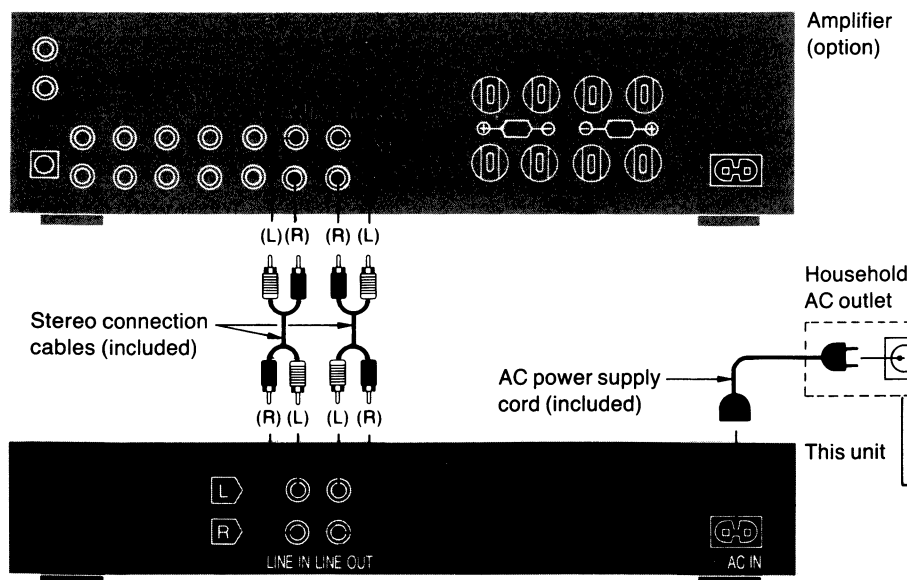


### • Stereo connection cables .....



**Note:** Configuration of AC power supply cord differs according to area.

## HOW TO CONNECTION



### Placement Hints

If this unit is placed near an amplifier or tuner, a "hum" noise may be heard during tape playback, recording, or AM reception of the tuner.

If this occurs, leave as much space as possible between the units, or place them where there is the least amount of "hum".

### Note:

The configuration of the AC outlet and AC power supply cord differs according to area.

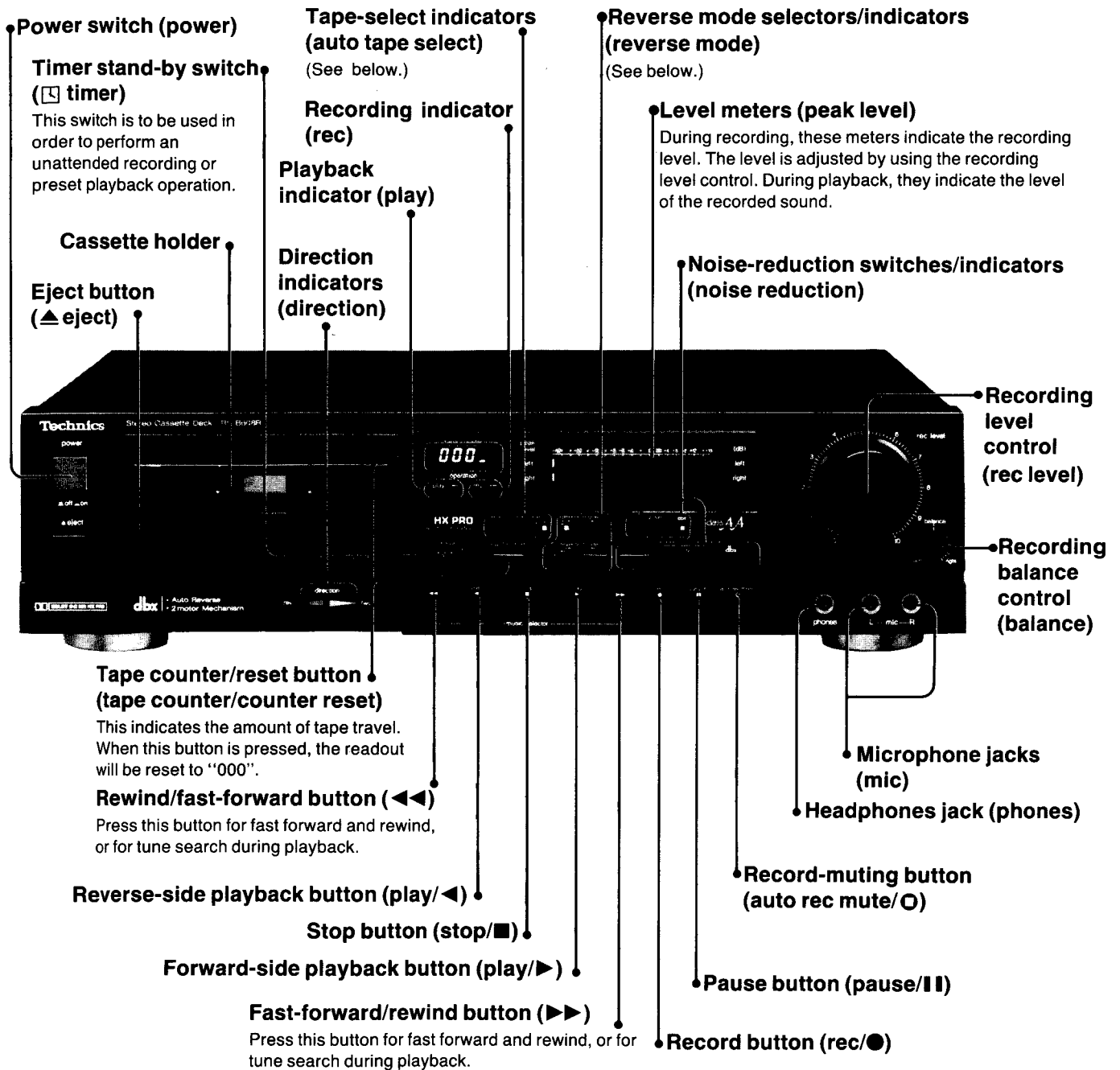
### For United Kingdom

AC power supply cord (included)

Household AC outlet

Fit a suitable plug to the AC power supply cord.

## LOCATION OF CONTROLS



### Reverse mode selectors

- **One-way mode (→)...**  
The playback (or recording) is of the forward side or reverse side only. (The tape automatically stops when it reaches either end.)
- **Continuous mode (↔)...**  
When this mode is selected during playback, 8 complete plays (forward and reverse), or in other words 15 automatic-reverse operations, are possible.  
If this continuous mode is used for recording, there will be one complete round-trip of the tape if the recording is started from the "forward" side; if the recording is started from the "reverse" side however, the recording will stop at the end of the "reverse" side; the tape will not automatically reverse to thereafter record on the "forward" side.

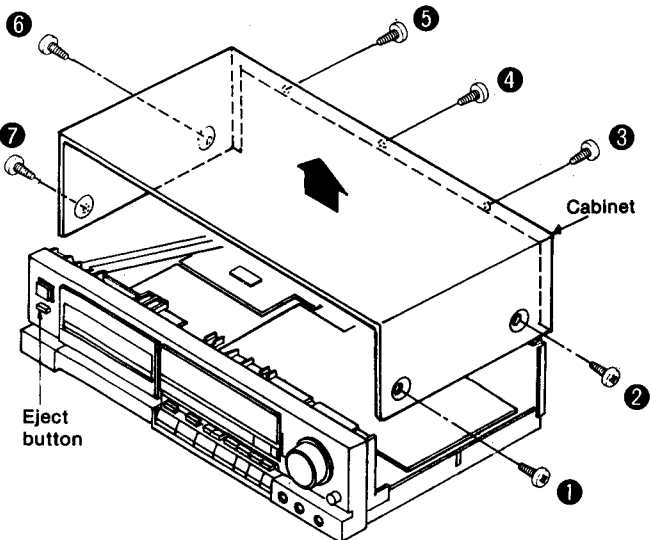
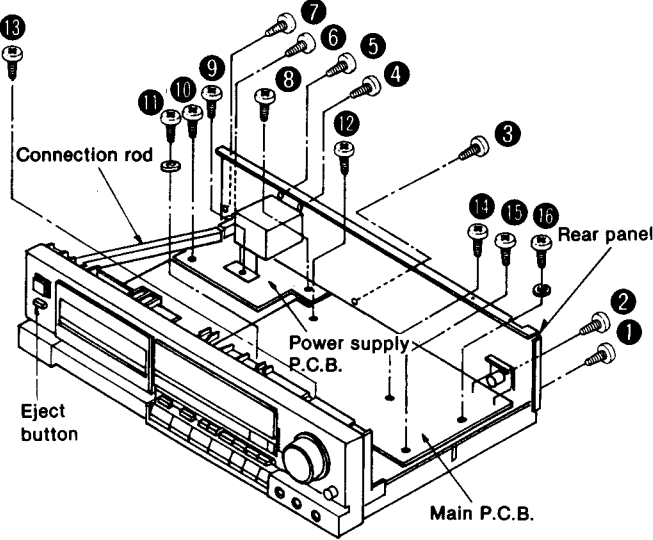
### Automatic tape selector system

This cassette deck automatically detects the type of tape being used, and adjusts for the proper bias and equalization. The tape-select indicator indicates the type of tape being used. "Metal" lights when no tape has been loaded in the cassette holder.

## DISASSEMBLY INSTRUCTIONS

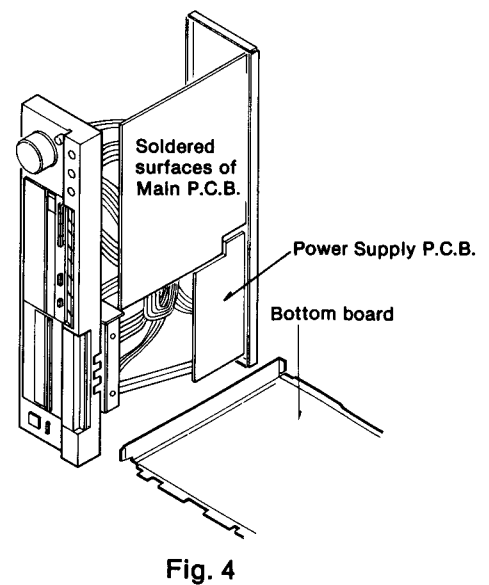
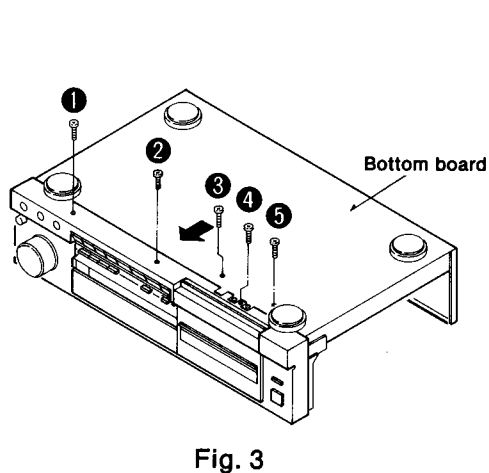
### "ATTENTION SERVICER"

Some chassis components may have sharp edges. Be careful when disassembling and servicing.

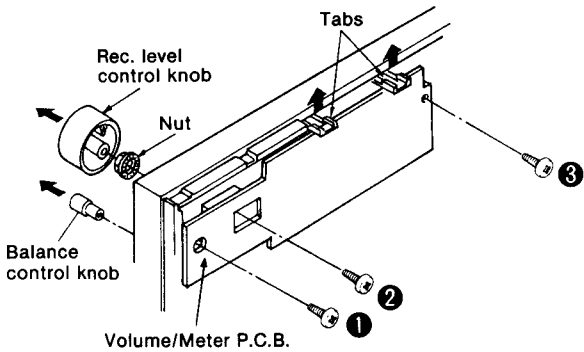
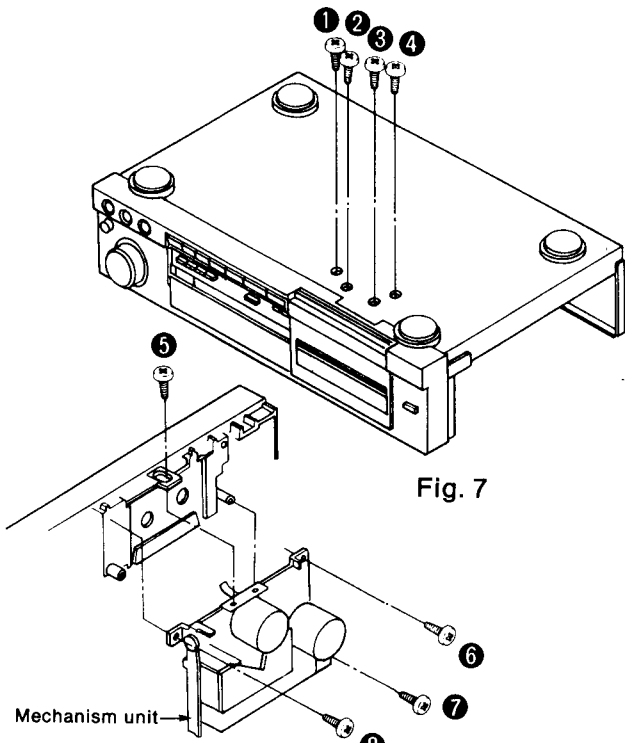
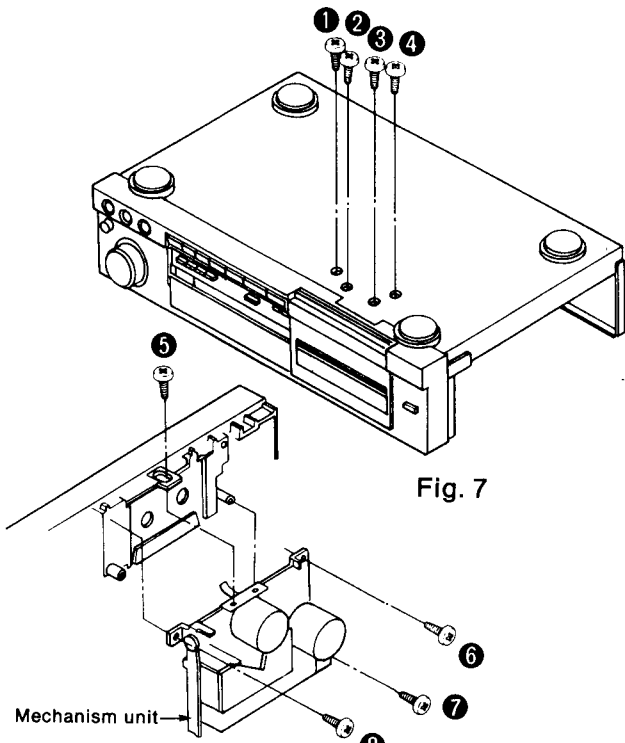
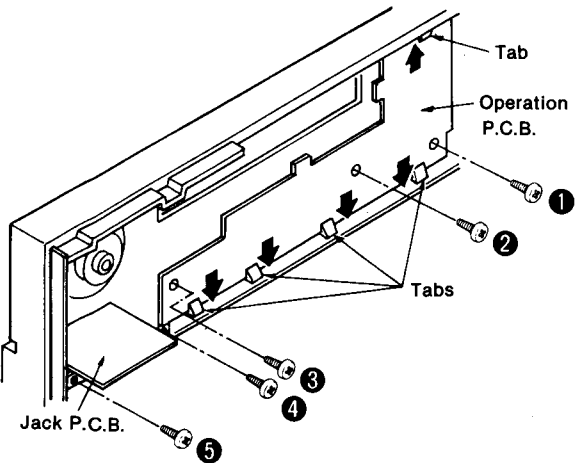
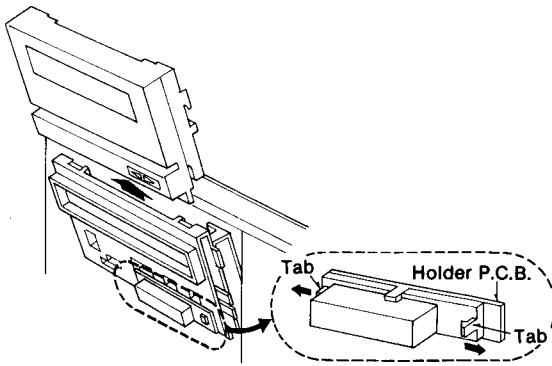
Ref. No. 1	How to remove the Cabinet	Ref. No. 2	How to remove the Power supply P.C.B. and the Main P.C.B.
Procedure 1	<ul style="list-style-type: none"> <li>Remove the 7 screws (①~⑦).</li> </ul>	Procedure 1→2	<ul style="list-style-type: none"> <li>Remove the 7 screws (①~⑦), and then remove the Rear panel.</li> <li>Remove the connection rod.</li> <li>Remove the 3 screws (⑧~⑩).</li> <li>Remove the Power supply P.C.B.</li> <li>Remove the 6 screws (⑪~⑯).</li> <li>Remove the Main P.C.B.</li> </ul>
	 <p>Fig. 1</p>		 <p>Fig. 2</p>

### How to check the Main P.C.B.

- When checking the soldered surfaces of Main P.C.B. and replacing the parts, do as shown.
  - Remove the Main P.C.B. and Power supply P.C.B.
  - Remove the 5 screws (①~⑤), and then remove the Bottom board.





<b>Ref. No.</b> 3	<b>How to remove the Volume/Meter P.C.B.</b>	<b>Ref. No.</b> 5	<b>How to remove the mechanism unit</b>
<b>Procedure</b> 1→2→3	<ul style="list-style-type: none"> <li>• Pull out the rec. level control knob and the nut.</li> <li>• Pull out the balance control knob.</li> <li>• Remove the 3 screws (①~③).</li> <li>• Release the 2 tabs, and then remove the Volume/Meter P.C.B.</li> </ul>	<b>Procedure</b> 1→2→5	<ul style="list-style-type: none"> <li>• Remove the 4 screws (①~④).</li> <li>• Remove the 4 screws (⑤~⑧).</li> <li>• Push the eject button and remove the mechanism unit.</li> </ul>
	 <p>Fig. 5</p>		 <p>Fig. 7</p>
<b>Ref. No.</b> 4	<b>How to remove the Operation P.C.B. and the Jack P.C.B.</b>		 <p>Fig. 8</p>
<b>Procedure</b> 1→2→3→4	<ul style="list-style-type: none"> <li>• Remove the 3 screws (①~③).</li> <li>• Release the 5 tabs, and then remove the Operation P.C.B.</li> <li>• Remove the 2 screws (④, ⑤), and then remove the Jack P.C.B.</li> </ul>	<b>Ref. No.</b> 6	<b>How to remove the Holder P.C.B.</b>
	 <p>Fig. 6</p>	<b>Procedure</b> 6	<ul style="list-style-type: none"> <li>• Remove the cassette lid.</li> <li>• Release the 2 tabs, and then remove the Holder P.C.B.</li> </ul>
			 <p>Fig. 9</p>

## MEASUREMENT AND ADJUSTMENT METHODES

### Measurement Condition

- Rec. level control; Maximum
- Timer stand-by switch; Off
- Noise reduction select switch; Off

### Measuring instrument

- EVM(Electronic Voltmeter)
- Oscilloscope
- Digital frequency counter
- AF oscillator

### Test tape

- Head azimuth adjustment (8kHz, -20dB); QZZCFM
- Tape speed adjustment (3kHz, -10dB); QZZCWAT
- Playback frequency response (315Hz, 12.5kHz, 10kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, 63Hz, -20dB); QZZCFM

- Balance control; Center
- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature  $20\pm5^{\circ}\text{C}(68\pm9^{\circ}\text{F})$

- ATT(Attenuator)
- DC voltmeter
- Resistor (600 $\Omega$ )

- Playback gain adjustment (315Hz, 0dB); QZZCFM
- Overall frequency response, Overall gain adjustment  
Normal reference blank tape; QZZCRA  
CrO<sub>2</sub> reference blank tape; QZZCRX  
Metal reference blank tape; QZZCRZ

### HEAD AZIMUTH ADJUSTMENT

1. Playback the azimuth adjustment portion (8 kHz, -20 dB) of the test tape (QZZCFM). Vary the azimuth adjusting screw until the outputs of the L-CH and R-CH are maximized and the lissajous waveform, as illustrated, approaches 0 degrees.

**Note:** If L-CH and R-CH are not maximized at the same point, adjust to the point where the levels of each channel are maximized and equal.

2. Perform the same adjustment in the play mode.
3. After the adjustment, apply screwlock to the azimuth adjusting screw.

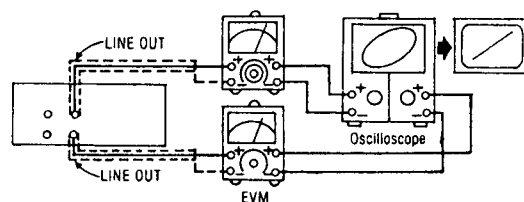


Fig. 1

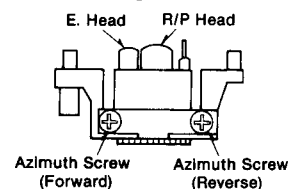


Fig. 2

### TAPE SPEED ADJUSTMENT

1. Playback the middle portion of the test tape (QZZCWAT).
2. Adjust the VR in the motor so that the output is within the standard value.

Standard value:  $3000 \pm 15\text{Hz}$

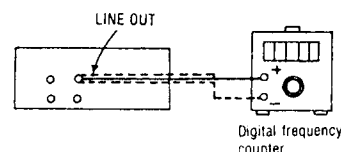


Fig. 3

### PLAYBACK GAIN ADJUSTMENT

1. Playback the gain adjusted portion (315 Hz, 0 dB) of the test tape (QZZCFM).
2. Adjust VR5 (L-CH) and VR6 (R-CH) so that the output is within the standard value.

Standard value:  $0.4\text{V} \pm 0.5\text{dB}$

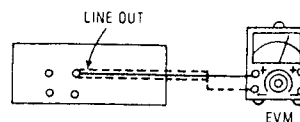


Fig. 4

### PLAYBACK FREQUENCY RESPONSE

1. Playback the frequency response portion (315 Hz, 12.5 kHz ~ 63 Hz, -20 dB) of the test tape (QZZCFM).
2. Assure that the frequency response is within the range shown in Fig. 6 for both L-CH and R-CH.

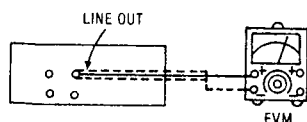


Fig. 5

Playback frequency response chart

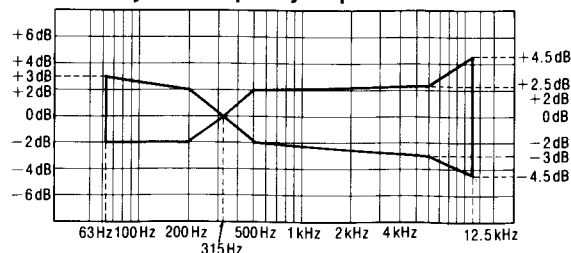


Fig. 6

## OVERALL FREQUENCY RESPONSE

1. Insert the a Normal blank test tape (QZZCRA) and set the unit to the Record Pause mode.
2. Apply a reference input signal (1 kHz, -24 dB) through an attenuator.
3. Attenuate the signal by 20 dB and adjust the frequency from 50 Hz ~ 12.5 kHz.
4. Record the frequency sweep.
5. Playback the recorded signal and assure that it is within the range shown in Fig.8 in comparison to the reference frequency (1 kHz).
6. If it is not within the standard range, adjust VR301 (L-CH) and VR302 (R-CH) so that the frequency level is within the standard range.
7. Repeat steps 2 ~ 6 above using the CrO<sub>2</sub> tape(QZZCRX) and the Metal tape(QZZCRZ) increasing the frequency range to 14 kHz (50 Hz ~ 14 kHz).
8. Assure that the level is within the range shown in Fig.9.

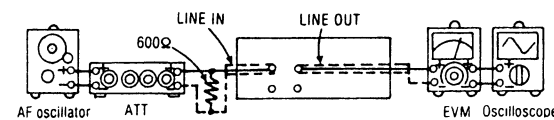


Fig. 7

Normal Overall frequency response chart (NR OUT)

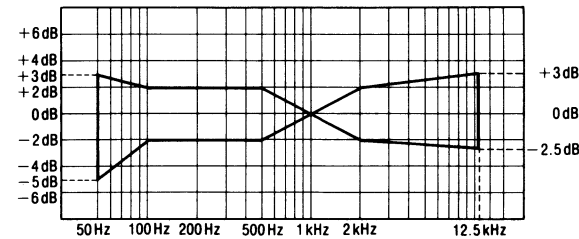


Fig. 8

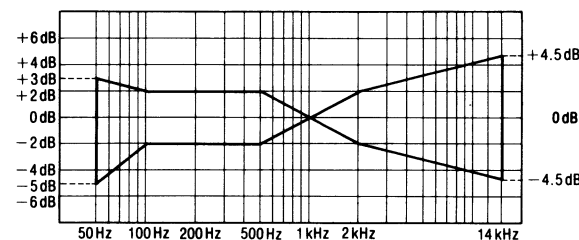
CrO<sub>2</sub> • Metal Overall frequency response chart (NR OUT)

Fig. 9

## OVERALL GAIN ADJUSTMENT

1. Insert the Normal blank test tape (QZZCRA) and set the unit to the Record pause mode.
2. Apply a reference input signal (1 kHz, -24 dB). Attenuate the output so that its level becomes 0.4V.
3. Record this input signal.
4. Playback the signal recorded in step 3 above, and assure that the output is within the standard value.
5. If it is not within the standard value, adjust VR7 (L-CH) and VR8 (R-CH).
6. Repeat the step 2 ~ 5 above until the output is within the standard value.

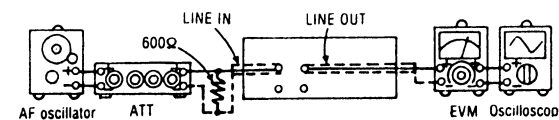


Fig. 10

Standard value: 0.4V ± 0.5dB

## FLUORESCENT METER ADJUSTMENT

1. Insert the Normal blank test tape (QZZCRA) and apply a reference input signal (1 kHz, -24 dB) in the Record Pause mode.
2. Using an attenuator, adjust until the voltage of the tape decks "LINE OUT" terminals is 0.4V.
3. Adjust VR701 so that the "0 dB" segment is slightly illuminated.

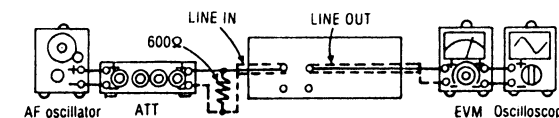


Fig. 11

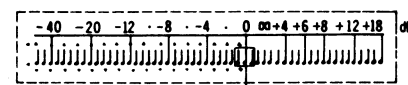


Fig. 12

## dbx TIMING ADJUSTMENT

1. Shift the noise reduction switch to the dbx position.
2. Playback the gain adjustment portion (315 Hz, 0 dB) of the test tape (QZZCFM).
3. Connect a DC voltmeter across TP501 and TP502.
4. Adjust VR501 so that the output is within the standard value.

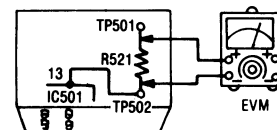


Fig. 13

Standard value: DC18.4mV ± 0.5mV

## HX-PRO ADJUSTMENT

1. Insert the Metal blank tape (QZZCRZ) and set the unit to the Record Pause mode.
2. Connect a DC voltmeter across TP7 (L-CH) and TP6, TP8 (R-CH) and TP6.
3. Adjust L303 (L-CH) and L304 (R-CH) so that the output is within the standard value.

Standard value: Less than DC 11mA

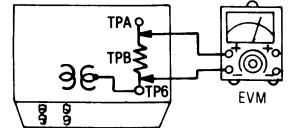
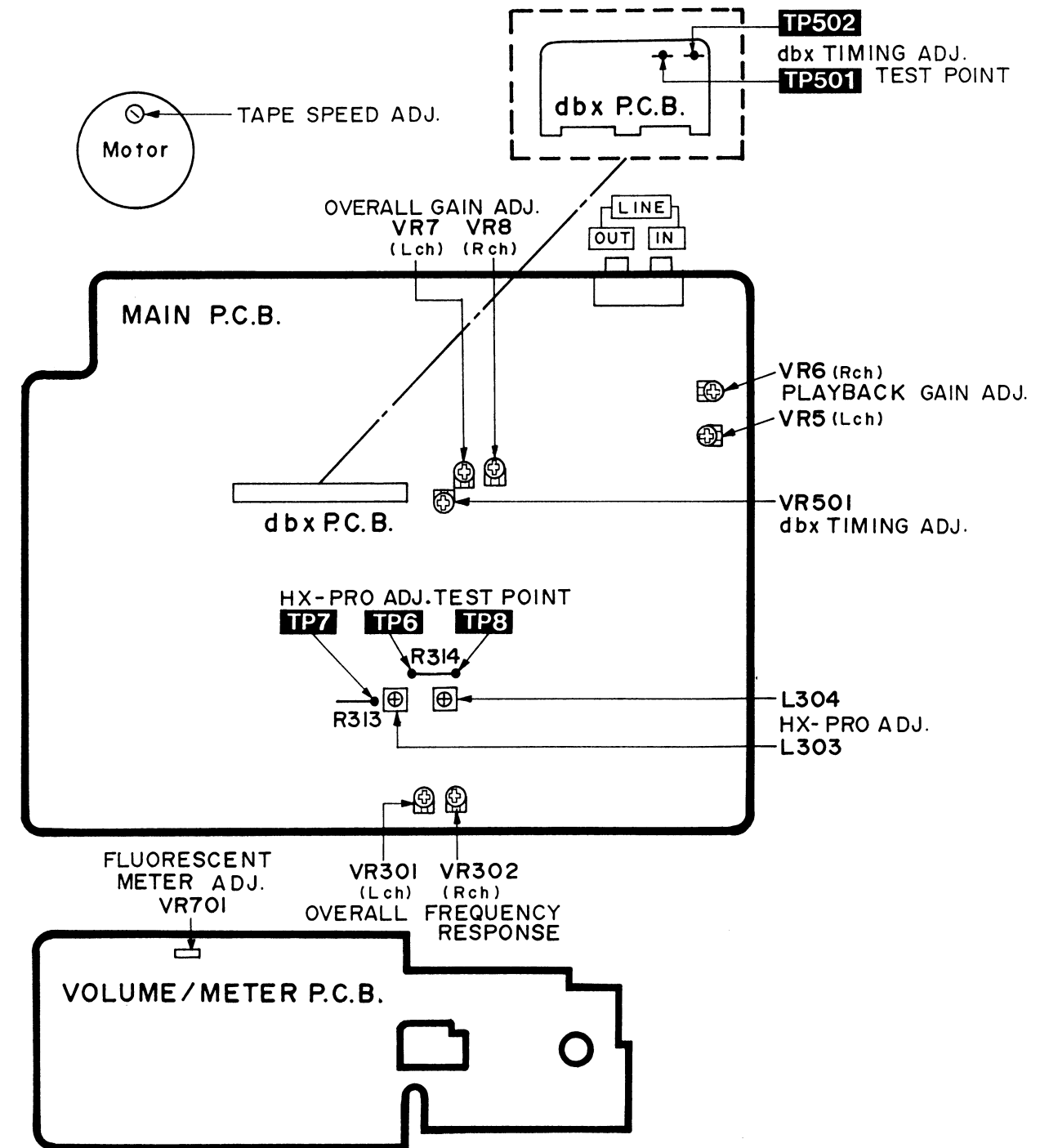


Fig. 14

TPA { TP7 (L-CH) TP8 (R-CH) TPB { R313 (10 ohms) (L-CH) R314 (10 ohms) (R-CH)

## • Adjustment Points



■ MICROCOMPUTER TERMINAL FUNCTION

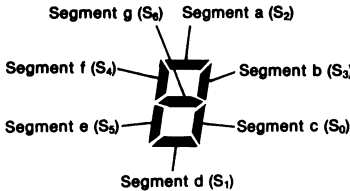
(IC801: LC6520C-3658) \* This microcomputer is used for mechanical operation.

Pin No.	Symbol	In/Out	Description of terminal																																			
1	PA2 (EST)	—	Not used in this unit.																																			
2	PA3 (POF)	Input	Power Supply Off detection.																																			
3	PB0 (Scan in 0)	Input	<div>Reading of Key Scan input</div> <table><tr><th><div>In</div><div>OUT</div></th><th>3 (PB0)</th><th>4 (PB1)</th><th>5 (PB2)</th><th>6 (PB3)</th></tr><tr><td>7 (PC0)</td><td>STOP</td><td>PAUSE</td><td>Reverse-side PLAY</td><td>Forward-side PLAY</td></tr><tr><td>8 (PC1)</td><td>AUTO REC MUTE</td><td>REC.</td><td>REW.</td><td>F.F.</td></tr><tr><td>9 (PC2)</td><td>dbx</td><td>Dolby C</td><td>Dolby B</td><td>NR OFF</td></tr><tr><td>10 (PC3)</td><td>Timer REC.</td><td>Timer PLAY</td><td>Reverse mode (↺)</td><td>Reverse mode (↻)</td></tr><tr><td>11 (PD0)</td><td>Forward-side REC. INH.</td><td>—</td><td>—</td><td>PACK SW</td></tr><tr><td>12 (PD1)</td><td>—</td><td>—</td><td>—</td><td>Quick in</td></tr></table>	<div>In</div> <div>OUT</div>	3 (PB0)	4 (PB1)	5 (PB2)	6 (PB3)	7 (PC0)	STOP	PAUSE	Reverse-side PLAY	Forward-side PLAY	8 (PC1)	AUTO REC MUTE	REC.	REW.	F.F.	9 (PC2)	dbx	Dolby C	Dolby B	NR OFF	10 (PC3)	Timer REC.	Timer PLAY	Reverse mode (↺)	Reverse mode (↻)	11 (PD0)	Forward-side REC. INH.	—	—	PACK SW	12 (PD1)	—	—	—	Quick in
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4	PB1 (Scan in 1)																																					
5	PB2 (Scan in 2)																																					
6	PB3 (Scan in 3)																																					
7	PC0 (Scan out 0)	Output	Key Scan Output.																																			
8	PC1 (Scan out 1)																																					
9	PC2 (Scan out 2)																																					
10	PC3 (Scan out 3)																																					
11	PD0 (Scan out 4)																																					
12	PD1 (Scan out 5)																																					
13	PD2 (R. REC. INH.)	Input	Reverse-side REC. Inhibit switch. • “L” in REC. Inhibit switch on mode. • “H” in REC. Inhibit switch off mode.																																			
14	PD3 (MSP)	Input	Music selector pulse. • Non Recorded space detection.																																			
15	PE0 (CD Edit Ind)	—	Not used in this unit.																																			

Pin No.	Symbol	In/Out	Description of terminal
16	PE1 (RMT)	Output	REC. mute control.
17	PE2 (MMT)	Output	Meter mute control.
18	PE3 (DMT)	Output	LINE OUT Direct mute control. • “L” in PLAY, REC-PLAY, REC-PAUSE mode. • “H” in other mode.
19	TEST	—	Test terminal. • Connected to GND.
20	V <sub>SS</sub> (GND)	—	GND terminal.
21	OSC1	Output Input	Clock OSC terminal
22	OSC2		
23	RES	Input	Reset terminal. • Reset at “L” level.
24	PF0 (RM-SP)	Output	Reel motor speed control. • “L” in PLAY, REC-PLAY and STOP mode. • “H” in other mode.
25	PF1 (RM-F)	Output	Reel motor control. • “H” in Foward PLAY and F.F. mode.
26	PF2 (RM-R)	Output	Reel motor control. • “H” in Reverse PLAY and REW mode.
27	PF3 (CPM)	Output	Capstan motor control. • “L” in PLAY and REC-PLAY mode. • “H” in other mode.
28	PG0 (C/R PL)	Output	Plunger control. • “L” in plunger ON mode (REC-PLAY, CUE, REV etc).
29	PG1 (Trig PL)	Output	Plunger control. • “L” in plunger ON mode.
30	PG2 (RPS)	Input	Reel table pulse. • Reel table rotation is detected by photo sensor.
31	PG3 (C. Up/Down)	Output	Counter UP/Down command. • “H” in counter is UP mode (Forward-PLAY, F.F. etc). • “L” in counter is down mode (Reverse-PLAY, REW etc).

Pin No.	Symbol	In/Out	Description of terminal
32	PI0 (BIAS)	Output	Bias OSC control. • “L” in REC-PLAY mode.
33	PI1 (REC. LED)	Output	REC. LED display. • “L” in REC-PAUSE and REC-PLAY mode. • “H” in other mode.
34	PI2 (PLAY LED)	Output	PLAY LED display. • “L” in PLAY and REC-PLAY mode. • “H” in STOP, FF and REW mode.
35	PI3 (DIR LED)	Output	DIRECTION LED display. • “H” in Foward mode. • “L” in Reverse mode.
36	PJ0 (Remote)	—	Not used in this unit.
37	PJ1 (Dolby B)	Output	Noise reduction selector. • “L” in Dolby B mode. • “H” in other mode.
38	PJ2 (Dolby C)	Output	Noise reduction selector. • “L” in Dolby C mode. • “H” in other mode.
39	PJ3 (dbx)	Output	Noise reduction selector. • “L” in dbx mode. • “H” in other mode.
40	V <sub>DD</sub>	—	Power supply terminal.
41	PA0	Output	Reverse mode LED display. • “L” in ↻ (continuous) mode.
42	PA1	Output	Reverse mode LED display. • “L” in ⇄ (one-way) mode.

(IC701: M50726-427SP) \*This microcomputer is used for tape counter operation and FL meter.

Pin No.	Symbol	In/Out	Function/operation
1	$\overline{\text{RESET}}$	Input	Reset terminal.
2	INT	Input	Reel table Pulse. • The rotation of reel table is detected by photo sensor, and the pulses are used to carry up or down for the counter.
3	AV <sub>SS</sub>	—	Power supply for A-D converter, AV <sub>SS</sub> =3.5V.
4	V <sub>REF</sub>	Input	Reference Power supply.
5	K <sub>0</sub>	Input	Lch A-D Converter (Analogue input).
6	K <sub>1</sub>	Input	Rch A-D Converter (Analogue input).
7	K <sub>2</sub>	Input	Reset input. • Activate “Low” (counter display is reset to 000_.) Counter up/down select command.
8	K <sub>3</sub>	Input	Meter mute control (activate “Low”). Meter rene (wide/normal) mode selector.
9	AV <sub>DD</sub>	Input	Power supply for A-D converter. • Connected to V <sub>DD</sub> .
10	S <sub>0</sub>	In/Out	Counter segment (active “LOW”). 
11	S <sub>1</sub>		
12	S <sub>2</sub>		
13	S <sub>3</sub>		
14	S <sub>4</sub>		
15	S <sub>5</sub>		
16	S <sub>6</sub>		
18	D <sub>0</sub>	Output	Scan signal for counter drive (SC1).
19	D <sub>1</sub>	Output	Scan signal for level meter drive (SC2).
20	CNV <sub>SS</sub>	—	• Connected to V <sub>SS</sub> .
21	V <sub>SS</sub>	—	• Connected to GND.

Pin No.	Symbol	In/Out	Function/operation
17	S <sub>7</sub>	In/Out	<b>Level meter segment</b> 
22	D <sub>2</sub>		
23	D <sub>3</sub>		
24	D <sub>4</sub>		
25	D <sub>5</sub>		
26	D <sub>6</sub>		
27	D <sub>7</sub>		
28	D <sub>8</sub>		
29	D <sub>9</sub>		
30	D <sub>10</sub>		
31	F <sub>0</sub>		
32	F <sub>1</sub>		
33	F <sub>2</sub>		
34	F <sub>3</sub>		
35	G <sub>0</sub>		
36	G <sub>1</sub>		
37	G <sub>2</sub>		
38	G <sub>3</sub>		
39	X <sub>OUT</sub>	Output	•Clock OSC terminal
40	X <sub>IN</sub>	Input	
41	CNTR	—	•Not used in this unit.
42	V <sub>DD</sub>	Input	Power supply terminal

## ■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

 <b>AN7016NK</b> 30 Pin <b>CX20187</b> 42 Pin <b>AN6294NK</b> 28 Pin		 <b>M50726-427SP</b> 42 Pin <b>LC6520C-3658</b> 42 Pin <b>UPC1297CA</b> 18 Pin		 <b>MN6634</b> 9 Pin <b>M5218L</b> 8 Pin <b>BA6218</b> 9 Pin	
<b>2SJ40CD</b> <b>2SK381</b> 	<b>2SC2603EFG</b> <b>2SA1115EFG</b> <b>2SD1468RS</b> 	<b>2SD1330R</b> <b>2SB1030Q</b> 	<b>DTC114ESTP</b> 	<b>DTA114ESTP, DTA144ESTP</b> 	
<b>2SC1846-Q</b> 	<b>2SB1237TAQR</b> <b>2SB1858TAQR</b> 	<b>2SD1762DE</b> <b>2SB1185DEF</b> 	<b>SVD1SR35200A</b> <b>SVD1S2473</b> <b>MA165</b> <b>MA700AT</b> 	<b>MTZ4R7BT77</b> <b>MTZ5R1CT77</b> <b>MTZ5R6B</b> <b>MTZ6R2CT77</b> <b>MTZ10BT77</b> <b>MTZ10CT77</b> 	
 <b>LN38GCPP(GREEN)</b> <b>LN48YCPPU(YEL)</b> <b>LN88RCPP(RED)</b>	 <b>SLV31MC3 (Green)</b>				

## ■ RESISTORS & CAPACITORS

**Notes :** \* Important safety notice :

Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

\* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)  
Parts without these indications can be used for all areas.

### Numbering System of Resistor

**Example:**

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1K $\Omega$ )
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470 $\Omega$ )

### Numbering System of Capacitor

**Example:**

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001 $\mu$ F)	Tolerance	Peculiarity
ECEA	50	M	330	
Type	Voltage (50V)	Peculiarity	Value (33 $\mu$ F)	

● Capacity are in microfarads ( $\mu$ F) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).

● Resistance are in ohms ( $\Omega$ ), unless specified otherwise, 1K = 1,000 $\Omega$ , 1M = 1,000k $\Omega$

Resistor Type	Wattage	Tolerance
ERD : Carbon	10 : 1/8W 12 : 1/2W	J : $\pm 5\%$
ERG : Metal Oxide	14 : 1/4W 25 : 1/4W	F : $\pm 1\%$
ERQ : Fuse Type Metal	1A : 1W 18 : 1/8W	G : $\pm 2\%$
ERX : Metal Film	S2 : 1/4W S1 : 1/2W	J : $\pm 5\%$
ERD L : Carbon (chip)	2F : 1/4W 50 : 1/2W	K : $\pm 10\%$
ERO K : Metal Film (chip)	2A : 2W 3A : 3W	M : $\pm 20\%$
ERC : Solid	6G : 1/10W 8G : 1/8W	
ERF : Incombustible Box-Shaped		
ERM : Wire-Wound		
RRJ : Chip Resistor		
ERJ : Chip Resistor		

Capacitor Type	Voltage	Tolerance
ECE : Electrolytic	0J : 6.3V 1A : 10V	K : $\pm 10\%$
ECCD : Ceramic	1C : 16V 1E : 25V	M : $\pm 20\%$
ECKD : Ceramic Capacitor	1H : 50V 1V : 35V	Z : $+80\%$
ECQM : Polyester	50 : 50V 05 : 50V	-20
ECQP : Polypropylene	2H : 500V 2A : 100V	J : $\pm 5\%$
ECG : Ceramic	1 : 100V 1J : 63V	G : $\pm 2\%$
ECEA N : Non Polar Electrolytic	KC : 400V AC	F : $\pm 1\%$
QCU : Ceramic (Chip Type)	KC : 125V AC (UL)	C : $\pm 0.25\mu$ F
ECUX : Ceramic (Chip Type)		D : $\pm 0.5\mu$ F
ECF : Semiconductor		
EECW : Liquid electrolyte double layer capacitor		

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)								
R1	ERDS2TJ333	33K 1/4	R41	ERDS2TJ222	2.2K 1/4	R85	ERDS2TJ101	100 1/4
R2	ERDS2TJ333	33K 1/4	R42	ERDS2TJ222	2.2K 1/4	(E, EH, EG, XA)		
R3	ERDS2TJ473	47K 1/4	R43	ERDS2TJ390	39 1/4	(XB)		
R4	ERDS2TJ473	47K 1/4	R44	ERDS2TJ390	39 1/4	R86	ERX1ANJ101	100 1
R5	ERDS2TJ102	1K 1/4	R45	ERDS2TJ101	100 1/4	(EK, XL)		
R6	ERDS2TJ102	1K 1/4	R46	ERDS2TJ101	100 1/4	R86	ERDS2TJ101	100 1/4
R7	ERDS2TJ472	4.7K 1/4	R47	ERDS2TJ221	220 1/4	(E, EH, EG, XA)		
R8	ERDS2TJ472	4.7K 1/4	R48	ERDS2TJ221	220 1/4	(XB)		
R9	ERDS2TJ104	100K 1/4	R51	ERDS2TJ222	2.2K 1/4	R86	ERX1ANJ101	100 1
R10	ERDS2TJ473	47K 1/4	R52	ERDS2TJ222	2.2K 1/4	(EK, XL)		
R11	ERDS2TJ121	120 1/4	R53	ERDS2TJ562	5.6K 1/4	R87	ERDS2TJ472	4.7K 1/4
R12	ERDS2TJ121	120 1/4	R54	ERDS2TJ562	5.6K 1/4	R88	ERDS2TJ472	4.7K 1/4
R13	ERDS2TJ133	13K 1/4	R55	ERDS2TJ122	1.2K 1/4	R89	ERDS2TJ562	5.6K 1/4
R14	ERDS2TJ133	13K 1/4	R56	ERDS2TJ122	1.2K 1/4	R92	ERDS2TJ562	5.6K 1/4
R15	ERDS2TJ564	560K 1/4	R57	ERDS2TJ102	1K 1/4	R93	ERDS2TJ392	3.9K 1/4
R16	ERDS2TJ564	560K 1/4	R58	ERDS2TJ102	1K 1/4	R301	ERDS2TJ153	15K 1/4
R17	ERDS2TJ912	9.1K 1/4	R59	ERDS2TJ332	3.3K 1/4	R302	ERDS2TJ153	15K 1/4
R18	ERDS2TJ912	9.1K 1/4	R60	ERDS2TJ332	3.3K 1/4	R303	ERDS2TJ123	12K 1/4
R19	ERDS2TJ155	1.5M 1/4	R61	ERDS2TJ223	22K 1/4	R305	ERDS2TJ154	150K 1/4
R20	ERDS2TJ155	1.5M 1/4	R62	ERDS2TJ223	22K 1/4	R306	ERDS2TJ154	150K 1/4
R21	ERDS2TJ223	22K 1/4	R63	ERD25FJ100	10 1/4	R307	ERDS2TJ223	22K 1/4
R22	ERDS2TJ223	22K 1/4	R64	ERD25FJ100	10 1/4	R308	ERDS2TJ223	22K 1/4
R23	ERDS2TJ101	100 1/4	R65	ERD25FJ100	1 1/4	R309	ERDS2TJ180	18 1/4
R24	ERDS2TJ101	100 1/4	R66	ERDS2TJ222	2.2K 1/4	R310	ERDS2TJ180	18 1/4
R25	ERDS2TJ103	10K 1/4	R67	ERDS2TJ472	4.7K 1/4	R311	ERDS2TJ473	47K 1/4
R26	ERDS2TJ103	10K 1/4	R68	ERDS2TJ472	4.7K 1/4	R312	ERDS2TJ102	1K 1/4
R27	ERDS2TJ100	10 1/4	R69	ERDS2TJ472	4.7K 1/4	R313	ERD2FCG100	10 1/4
R28	ERDS2TJ100	10 1/4	R70	ERDS2TJ472	4.7K 1/4	R314	ERD2FCG100	10 1/4
R29	ERDS2TJ330	33 1/4	R71	ERDS2TJ472	4.7K 1/4	R315	ERD2FCG100	10 1/4
R30	ERDS2TJ330	33 1/4	R72	ERDS2TJ103	10K 1/4	(XB, E, EH, EG)		
R31	ERDS2TJ102	1K 1/4	R73	ERDS2TJ102	1K 1/4	(XA)		
R32	ERDS2TJ102	1K 1/4	R74	ERDS2TJ102	1K 1/4	R317	ERDS2TJ102	1K 1/4
R33	ERDS2TJ332	3.3K 1/4	R75	ERDS2TJ473	47K 1/4	R318	ERDS2TJ103	10K 1/4
R34	ERDS2TJ332	3.3K 1/4	R76	ERDS2TJ473	47K 1/4	R319	ERDS2TJ222	2.2K 1/4
R35	ERDS2TJ473	47K 1/4	R77	ERDS2TJ822	8.2K 1/4	R320	ERDS2TJ331	330 1/4
R36	ERDS2TJ473	47K 1/4	R78	ERDS2TJ822	8.2K 1/4	R321	ERDS2TJ221	220 1/4
R37	ERDS2TJ472	4.7K 1/4	R79	ERDS2TJ152	1.5K 1/4	R325	ERD2FCJ477	4.7 1/4
R38	ERDS2TJ472	4.7K 1/4	R80	ERDS2TJ152	1.5K 1/4	(EK, XL)		
R39	ERDS2TJ473	47K 1/4	R81	ERDS2TJ182	1.8K 1/4	R327	ERDS2TJ473	47K 1/4
R40	ERDS2TJ473	47K 1/4	R82	ERDS2TJ182	1.8K 1/4	R328	ERDS2TJ103	10K 1/4
			R83	ERDS2TJ224	220K 1/4	R401	ERDS2TJ242	2.4K 1/4
			R84	ERDS2TJ224	220K 1/4	R402	ERDS2TJ242	2.4K 1/4

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
R405	ERDS2TJ274	270K 1/4	(XB)			R841	ERDS2TJ103	10K 1/4
R406	ERDS2TJ274	270K 1/4	R612	ERG1ANJ560	56 1	R901	ERDS2TJ103	10K 1/4
R407	ERDS2TJ274	270K 1/4	(EK, XL)			R902	ERDS2TJ103	10K 1/4
R408	ERDS2TJ274	270K 1/4	R613	ERQ16NKR15	0.15 1/6	R903	ERDS2TJ103	10K 1/4
R409	ERDS2TJ472	4.7K 1/4	(EK, XL)			R904	ERDS2TJ103	10K 1/4
R410	ERDS2TJ472	4.7K 1/4	R614	ERQ16NKR15	0.15 1/6	R905	ERDS2TJ332	3.3K 1/4
R411	ERDS2TJ471	470 1/4	(EK, XL)			R906	ERDS2TJ103	10K 1/4
R412	ERDS2TJ471	470 1/4	R701	ERDS2TJ105	1M 1/4	R907	ERDS2TJ103	10K 1/4
R413	ERDS2TJ392	3.9K 1/4	R702	ERDS2TJ104	100K 1/4	R908	ERDS2TJ104	100K 1/4
R414	ERDS2TJ392	3.9K 1/4	R703	ERDS2TJ104	100K 1/4	R909	ERDS2TJ681	680 1/4
R415	ERDS2TJ272	2.7K 1/4	R704	ERDS2TJ104	100K 1/4	R910	ERDS2TJ471	470 1/4
R416	ERDS2TJ272	2.7K 1/4	R705	ERDS2TJ101	100 1/4	R911	ERDS2TJ391	390 1/4
R417	ERDS2TJ682	6.8K 1/4	R706	ERDS2TJ101	100 1/4	R912	ERG1ANJ390	39 1
R418	ERDS2TJ682	6.8K 1/4	R707	ERDS2TJ103	10K 1/4	(E, EH, EG, XA)		
R419	ERDS2TJ681	680 1/4	R708	ERDS2TJ103	10K 1/4	(XB)		
R420	ERDS2TJ681	680 1/4	R709	ERDS2TJ103	10K 1/4	R912	ERG3ANJ390	39 3
R421	ERDS2TJ152	1.5K 1/4	R710	ERDS2TJ103	10K 1/4	(EK, XL)		
R422	ERDS2TJ152	1.5K 1/4	R711	ERDS2TJ473	47K 1/4	R913	ERDS2TJ152	1.5K 1/4
R423	ERDS2TJ104	100K 1/4	R712	ERDS2TJ223	22K 1/4	R914	ERDS2TJ273	27K 1/4
R424	ERDS2TJ472	4.7K 1/4	R713	ERDS2TJ473	47K 1/4	R915	ERDS2TJ681	680 1/4
R425	ERDS2TJ472	4.7K 1/4	R714	ERDS2TJ102	1K 1/4	R916	ERDS2TJ102	1K 1/4
R426	ERDS2TJ472	4.7K 1/4	R715	ERDS2TJ102	1K 1/4	R917	ERG2ANJ390	39 2
R501	ERDS2TJ432	4.3K 1/4	R716	ERDS2TJ473	47K 1/4	(E, EH, EG, XA)		
R502	ERDS2TJ432	4.3K 1/4	R717	ERDS2TJ102	1K 1/4	(XB)		
R503	ERDS2TJ622	6.2K 1/4	R718	ERDS2TJ102	1K 1/4	R917	ERG3ANJ390	39 3
R504	ERDS2TJ622	6.2K 1/4	R719	ERDS2TJ473	47K 1/4	(EK, XL)		
R505	ERDS2TJ243	24K 1/4	R720	ERDS2TJ102	1K 1/4	R918	ERDS2TJ683	68K 1/4
R506	ERDS2TJ243	24K 1/4	R721	ERDS2TJ102	1K 1/4	R919	ERDS2TJ683	68K 1/4
R507	ERDS2TJ913	91K 1/4	R722	ERDS2TJ473	47K 1/4	R920	ERDS2TJ561	560 1/4
R508	ERDS2TJ913	91K 1/4	R723	ERDS2TJ102	1K 1/4	R921	ERDS2TJ103	10K 1/4
R509	ERDS2TJ472	4.7K 1/4	R724	ERDS2TJ102	1K 1/4	R922	ERDS2TJ104	100K 1/4
R510	ERDS2TJ472	4.7K 1/4	R725	ERDS2TJ473	47K 1/4	R923	ERDS2TJ102	1K 1/4
R511	ERDS2TJ333	33K 1/4	R726	ERDS2TJ103	10K 1/4	R924	ERDS2TJ471	470 1/4
R512	ERDS2TJ333	33K 1/4	R727	ERDS2TJ103	10K 1/4	R925	ERDS2TJ222	2.2K 1/4
R513	ERDS2TJ333	33K 1/4	R728	ERDS2TJ103	10K 1/4	R926	ERDS2TJ473	47K 1/4
R514	ERDS2TJ333	33K 1/4	R729	ERDS2TJ124	120K 1/4	R927	ERDS2TJ472	4.7K 1/4
R515	ERDS2TJ682	6.8K 1/4	R730	ERDS2TJ124	120K 1/4	R928	ERDS2TJ103	10K 1/4
R516	ERDS2TJ682	6.8K 1/4	R731	ERDS2TJ104	100K 1/4	R929	ERDS2TJ103	10K 1/4
R517	ERDS2TJ182	1.8K 1/4	R732	ERDS2TJ104	100K 1/4	R930	ERDS2TJ102	1K 1/4
R518	ERDS2TJ182	1.8K 1/4	R733	ERDS2TJ221	220 1/4	R931	ERDS2TJ561	560 1/4
R519	ERDS2TJ183	18K 1/4	R734	ERDS2TJ471	470 1/4	R932	ERDS2TJ561	560 1/4
R520	ERDS2TJ183	18K 1/4	R735	ERD2FCG181	180 1/4	R933	ERDS2TJ561	560 1/4
R521	ERDS2TJ102	1K 1/4	R736	ERD2FCG181	180 1/4	R934	ERDS2TJ102	1K 1/4
R523	ERDS2TJ123	12K 1/4	R801	ERDS2TJ472	4.7K 1/4	R935	ERDS2TJ561	560 1/4
R524	ERDS2TJ123	12K 1/4	R802	ERDS2TJ101	100 1/4	R936	ERDS2TJ561	560 1/4
R525	ERDS2TJ123	12K 1/4	R803	ERDS2TJ563	56K 1/4	R937	ERDS2TJ471	470 1/4
R526	ERDS2TJ123	12K 1/4	R804	ERDS2TJ393	39K 1/4	R938	ERDS2TJ103	10K 1/4
R527	ERDS2TJ112	1.1K 1/4	R805	ERDS2TJ103	10K 1/4	R939	ERDS2TJ103	10K 1/4
R528	ERDS2TJ112	1.1K 1/4	R806	ERDS2TJ392	3.9K 1/4	R940	ERDS2TJ562	5.6K 1/4
R529	ERDS2TJ112	1.1K 1/4	R807	ERDS2TJ332	3.3K 1/4	R941	ERD25FJ562	5.6K 1/4
R530	ERDS2TJ112	1.1K 1/4	R808	ERDS2TJ273	27K 1/4	R942	ERDS2TJ562	5.6K 1/4
R531	ERDS2TJ223	22K 1/4	R809	ERDS2TJ273	27K 1/4	R943	ERDS2TJ562	5.6K 1/4
R532	ERDS2TJ223	22K 1/4	R810	ERDS2TJ102	1K 1/4	R944	ERDS2TJ273	27K 1/4
R533	ERDS2TJ103	10K 1/4	R811	ERDS2TJ561	560 1/4	R945	ERDS2TJ273	27K 1/4
R601	ERDS2TJ683	68K 1/4	R812	ERDS2TJ471	470 1/4	R946	ERD25FJ103	10K 1/4
R602	ERDS2TJ683	68K 1/4	R813	ERDS2TJ223	22K 1/4	R951	ERDS2TJ472	4.7K 1/4
R605	ERDS2TJ152	1.5K 1/4	R814	ERDS2TJ103	10K 1/4	R952	ERDS2TJ472	4.7K 1/4
(E, EH, EG, XA)			R815	ERDS2TJ271	270 1/4	CAPACITORS(VALUE,VOLTAGE)		
(XB)			R817	ERDS2TJ103	10K 1/4	C1	ECEA1EU4R7	4.7 25
(E, EH, EG, XA)			R818	ERDS2TJ103	10K 1/4	C2	ECEA1EU4R7	4.7 25
(XB)			R819	ERDS2TJ103	10K 1/4	C5	ECKD1H103PF	0.01 50
R606	ERDS2TJ152	1.5K 1/4	R820	ERDS2TJ103	10K 1/4	C6	ECKD1H103PF	0.01 50
R607	ERD2FCJ4R7	4.7 1/4	R821	ERDS2TJ103	10K 1/4	C7	ECEA0JU470	47 6.3
R608	ERDS2TJ102	1K 1/4	R822	ERDS2TJ472	4.7K 1/4	C8	ECEA0JU470	47 6.3
R609	ERD2FCJ4R7	4.7 1/4	R823	ERD2FCG470	47 1/4	C9	ECQB1H562JZ	0.0056 50
R610	ERDS1FJ391	390 1/2	R824	ERDS2TJ103	10K 1/4	C10	ECQB1H562JZ	0.0056 50
(E, EH, EG, XA)			R825	ERDS2TJ103	10K 1/4	C11	ECEA1CU100	10 16
(XB)			R826	ERDS2TJ223	22K 1/4	C12	ECEA1CU100	10 16
R610	ERDS2TJ391	390 1/4	R827	ERDS2TJ473	47K 1/4	C13	ECKD1H102KB	0.001 50
(EK, XL)			R828	ERDS2TJ103	10K 1/4	C14	ECKD1H102KB	0.001 50
R611	ERDS2TJ560	56 1/4	R829	ERDS2TJ333	33K 1/4	C15	ECEA1HU010	1 50
(E, EH, EG, XA)			R830	ERDS2TJ103	10K 1/4	C16	ECEA1HU010	1 50
(XB)			R831	ERDS2TJ682	6.8K 1/4	C17	ECKD2H121KB	120P 500
R611	ERG1ANJ560	56 1	R832	ERDS2TJ103	10K 1/4	C18	ECKD2H121KB	120P 500
(EK, XL)			R833	ERDS2TJ103	10K 1/4	C19	ECKD1H821KB	820P 50
R612	ERDS2TJ560	56 1/4	R834	ERDS2TJ473	47K 1/4	C20	ECKD1H821KB	820P 50
(E, EH, EG, XA)			R839	ERDS2TJ393	39K 1/4			

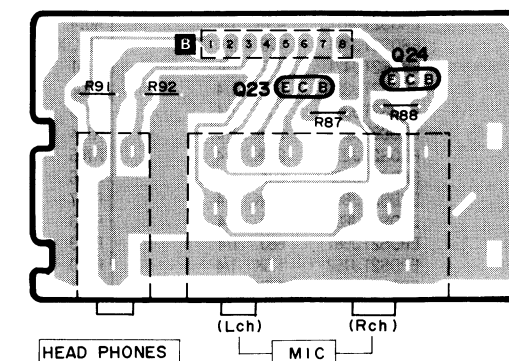
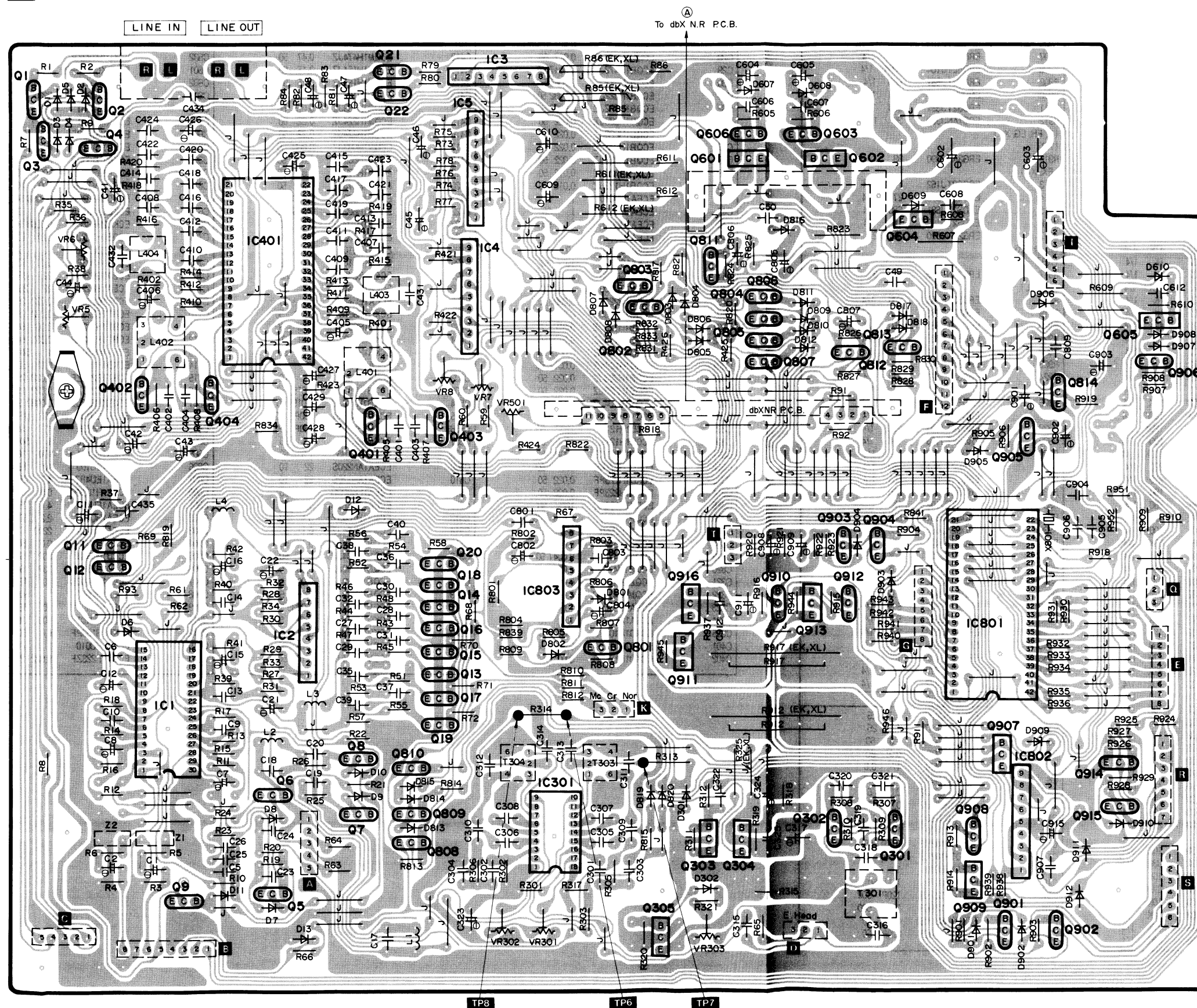
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C21	ECEA1EU4R7	4.7 25	C403	ECKD1H152KB	0.0015 50	C525	ECQB1H183JZ	0.018 50
C22	ECEA1EU4R7	4.7 25	C404	ECKD1H152KB	0.0015 50	C526	ECQB1H183JZ	0.018 50
C23	ECKD1H122KB	0.0012 50	C405	ECEA1EU4R7	4.7 25	C527	ECEA1AK220	22 10
C24	ECKD1H122KB	0.0012 50	C406	ECEA1EU4R7	4.7 25	C528	ECEA1AK220	22 10
C25	ECKD1H561KB	560P 50	C407	ECQB1H472JZ	0.0047 50	C529	ECKD1H182KB	0.0018 50
C26	ECKD1H561KB	560P 50	C408	ECQB1H472JZ	0.0047 50	C530	ECKD1H182KB	0.0018 50
C27	ECQM1H273JZ	0.027 50	C409	ECQM1H474JZ	0.47 50	C531	ECKD1H182KB	0.0018 50
C28	ECQM1H273JZ	0.027 50	C410	ECQM1H474JZ	0.47 50	C532	ECKD1H182KB	0.0018 50
C29	ECQB1H472JZ	0.0047 50	C411	ECQM1H154JZ	0.15 50	C601	△ ECKDKC103PF2	0.01 125
C30	ECQB1H472JZ	0.0047 50	C412	ECQM1H154JZ	0.15 50	C602	ECEA1CU472	4700 16
C31	ECQB1H822JZ	0.0082 50	C413	ECQB1H153JZ	0.015 50	C603	ECEA25V2200	2200 25
C32	ECQB1H822JZ	0.0082 50	C414	ECQB1H153JZ	0.015 50	C604	ECEA1CU331	330 16
C35	ECQB1H223JZ	0.022 50	C415	ECQM1H224JZ	0.22 50	C605	ECEA1CU331	330 16
C36	ECQB1H223JZ	0.022 50	C416	ECQM1H224JZ	0.22 50	C606	ECKD1H103PF	0.01 50
C37	ECQB1H223JZ	0.022 50	C417	ECQM1H683JZ	0.068 50	C607	ECKD1H103PF	0.01 50
C38	ECQB1H223JZ	0.022 50	C418	ECQM1H683JZ	0.068 50	C608	ECKD1H103PF	0.01 50
C39	ECQB1H123JZ	0.012 50	C419	ECQM1H473JZ	0.047 50	C609	ECEA10V1000	1000 10
C40	ECQB1H123JZ	0.012 50	C420	ECQM1H473JZ	0.047 50	C610	ECEA10V1000	1000 10
C41	ECEA1HU010	1 50	C421	ECQB1H682JZ	0.0068 50	C611	ECKD2H682PEL	0.0068 500
C42	ECEA1HU010	1 50	C422	ECQB1H682JZ	0.0068 50	C612	ECKD1H103PF	0.01 50
C43	ECEA1HU010	1 50	C423	ECQB1H103JZ	0.01 50	C614	ECKD2H682PE	0.0068 500
C44	ECEA1HU010	1 50	C424	ECQB1H103JZ	0.01 50	C701	ECQB1H103JZ	0.01 50
C45	ECEA1CU100	10 16	C425	ECEA1CU100	10 16	C702	ECEA1CKS100	10 16
C46	ECEA1CU100	10 16	C426	ECEA1CU100	10 16	C705	ECKD1H103PF	0.01 50
C47	ECEA1CU100	10 16	C427	ECEA1EU4R7	4.7 25	C707	ECEA1EK220	22 25
C48	ECEA1CU100	10 16	C428	ECEA1EU4R7	4.7 25	C708	ECEA1EK220	22 25
C49	ECQB1H223JZ	0.022 50	C429	ECEA1EU4R7	4.7 25	C709	ECBT1E223ZF	0.022 25
C50	ECQB1H223JZ	0.022 50	C431	ECKD1H681K	680P 50	C710	ECBT1E223ZF	0.022 25
C301	ECQB1H123JZ	0.012 50	C432	ECKD1H681K	680P 50	C711	ECBT1H102KB	0.001 50
C302	ECQB1H123JZ	0.012 50	C434	ECKR1H103ZF5	0.01 50	C712	ECBT1H102KB	0.001 50
C303	ECKD1H122KB	0.0012 50	C435	ECKR1H103ZF5	0.01 50	C713	ECEA1HK010	1 50
C304	ECKD1H122KB	0.0012 50	C501	ECEA1AK220	22 10	C714	ECKD1H103PF	0.01 50
C305	ECQB1H223JZ	0.022 50	C502	ECEA1AK220	22 10	C715	ECBT1E223ZF	0.022 25
C306	ECQB1H223JZ	0.022 50	C503	ECQB1H153JZ	0.015 50	C716	ECBT1E223ZF	0.022 25
C307	ECQV1H104JZ	0.1 50	C504	ECQB1H153JZ	0.015 50	C801	ECQB1H822JZ	0.0082 50
C308	ECQV1H104JZ	0.1 50	C505	ECKD1H331KB	330P 50	C802	ECEA1CU100	10 16
C309	ECCD1H121K	120P 50	C506	ECKD1H331KB	330P 50	C803	ECCD1H470K	47P 50
C310	ECCD1H121K	120P 50	C507	ECEA1HK1R5	1.5 50	C804	ECEA1HU010	1 50
C311	ECKD1H821KB	820P 50	C508	ECEA1HK1R5	1.5 50	C805	ECEA1CU471	470 16
C312	ECKD1H821KB	820P 50	C509	ECEA1AN220S	22 10	C806	ECEA1CU100	10 16
C313	ECKD1H223PF	0.022 50	C510	ECEA1AN220S	22 10	C807	ECEA1EU4R7	4.7 25
C314	ECKD1H223PF	0.022 50	C511	ECEA1EK3R3B	3.3 25	C809	ECKR1H103ZF5	0.01 50
C315	ECCD1H100KC	10P 50	C512	ECEA1EK3R3B	3.3 25	C901	ECEA1EU4R7	4.7 25
C316	ECQP1H83JZ	0.018 100	C513	ECQV1H104JZ	0.1 50	C902	ECEA1HU2R2	2.2 50
C317	ECEA1EU221	220 25	C514	ECQV1H104JZ	0.1 50	C903	ECEA0JU222	2200 6.3
C318	ECQB1H562JZ	0.0066 50	C515	ECQV1H104JZ	0.1 50	C904	ECKD1H103PF	0.01 50
C319	ECQB1H472JZ	0.0047 50	C516	ECQV1H104JZ	0.1 50	C905	ECCD1H330J	33P 50
C320	ECQB1H472JZ	0.0047 50	C517	ECQB1H332JZ	0.0033 50	C906	ECCD1H330J	33P 50
C321	ECQB1H472JZ	0.0047 50	C518	ECQB1H332JZ	0.0033 50	C907	ECEA1CN100S	10 16
C322	ECQM1H473JZ	0.047 50	C519	ECQB1H332JZ	0.0033 50	C908	ECEA1HU010	1 50
C323	ECEA1CU100	10 16	C520	ECQB1H332JZ	0.0033 50	C909	ECEA1CU100	10 16
C324	ECEA1AU101	100 10	C521	ECKD1H331KB	330P 50	C911	ECEA1CU101	100 16
C325	ECKD1H103PF	0.01 50	C522	ECKD1H331KB	330P 50	C912	ECKD1H103PF	0.01 50
C401	ECKD1H122KB	0.0012 50	C523	ECQV1H184JZ	0.18 50	C915	ECEA1HU010	1 50
C402	ECKD1H122KB	0.0012 50	C524	ECQV1H184JZ	0.18 50	C916	ECBT1E223ZF	0.022 25



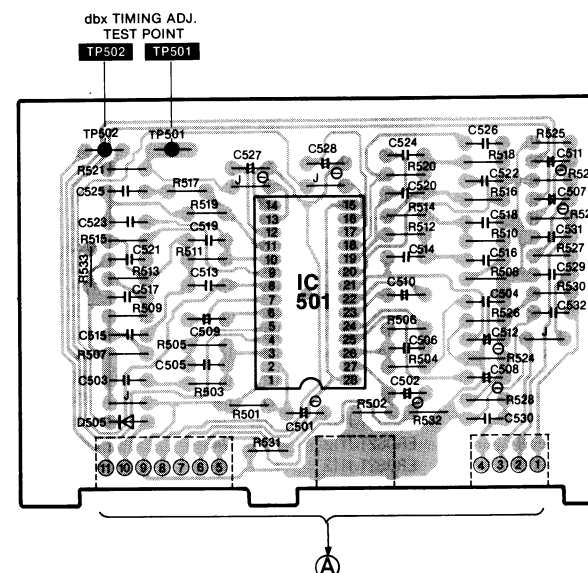
# PRINTED CIRCUIT BOARDS

## MAIN P.C.B.

## JACK P.C.B.



## dbx P.C.B.

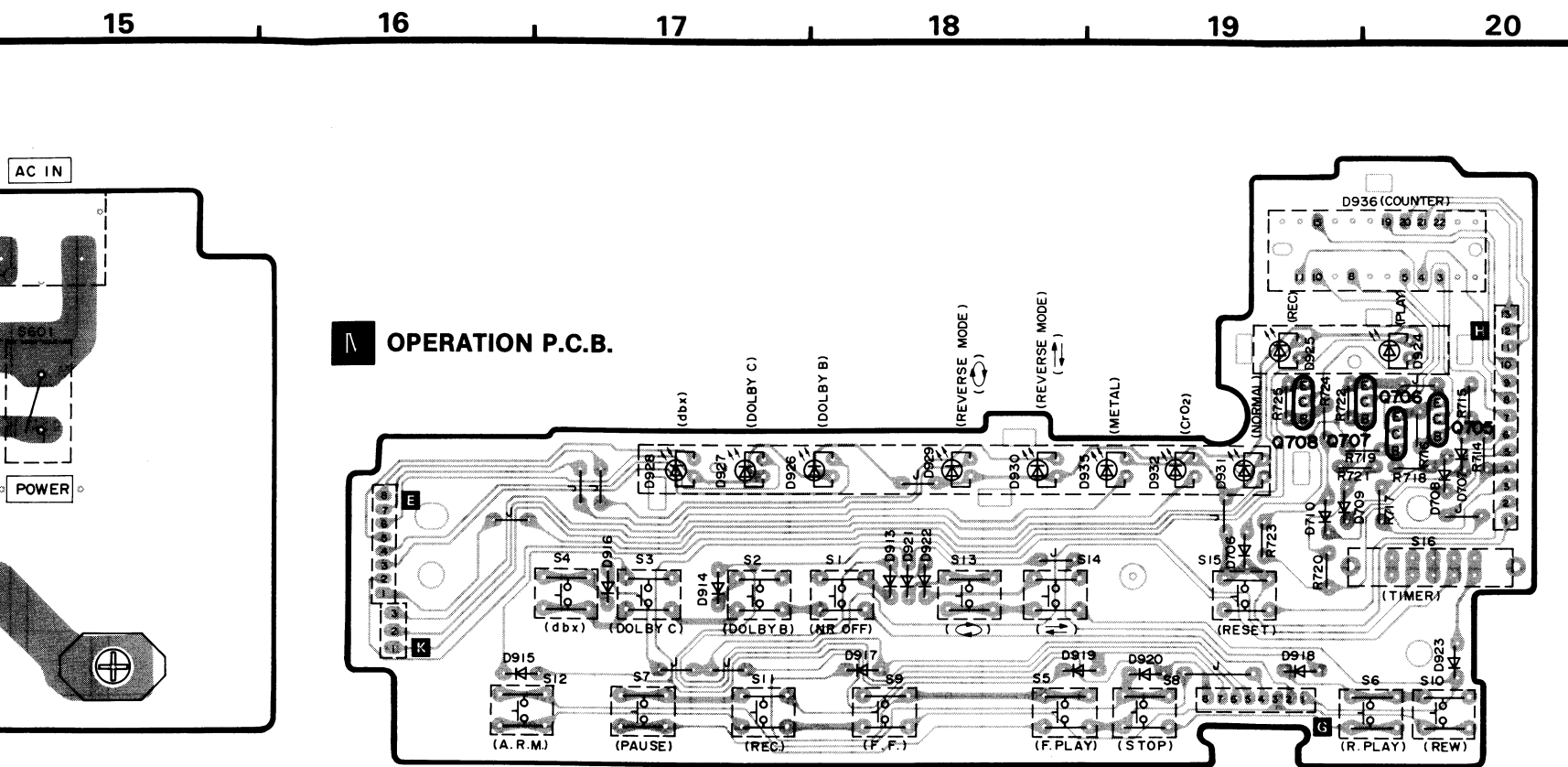
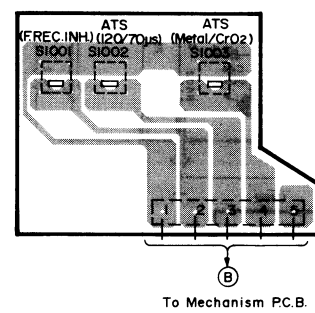
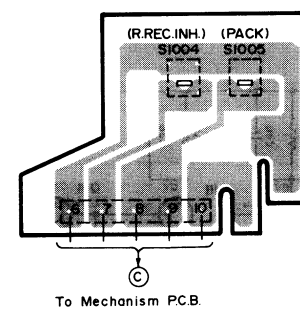
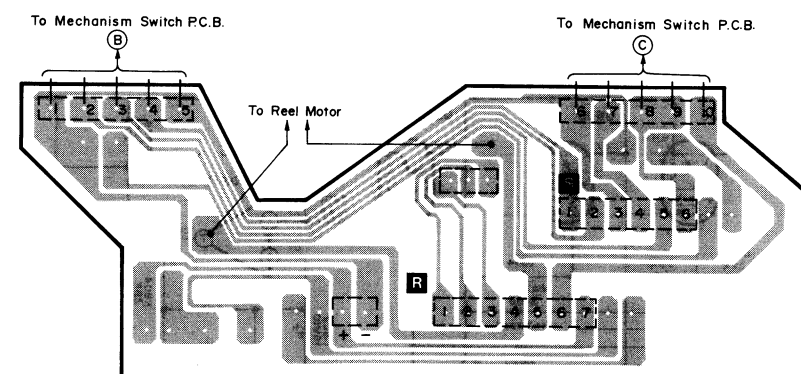
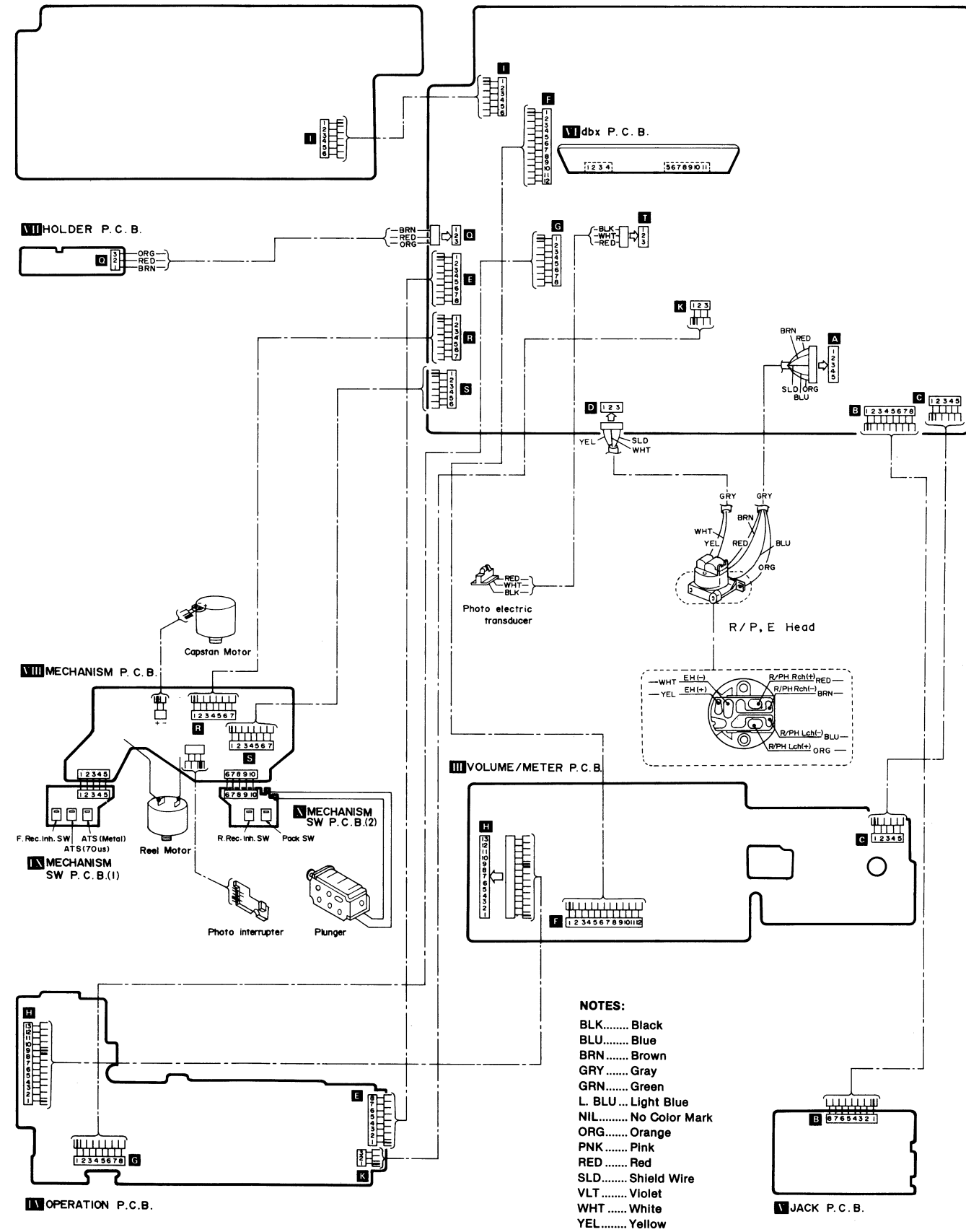


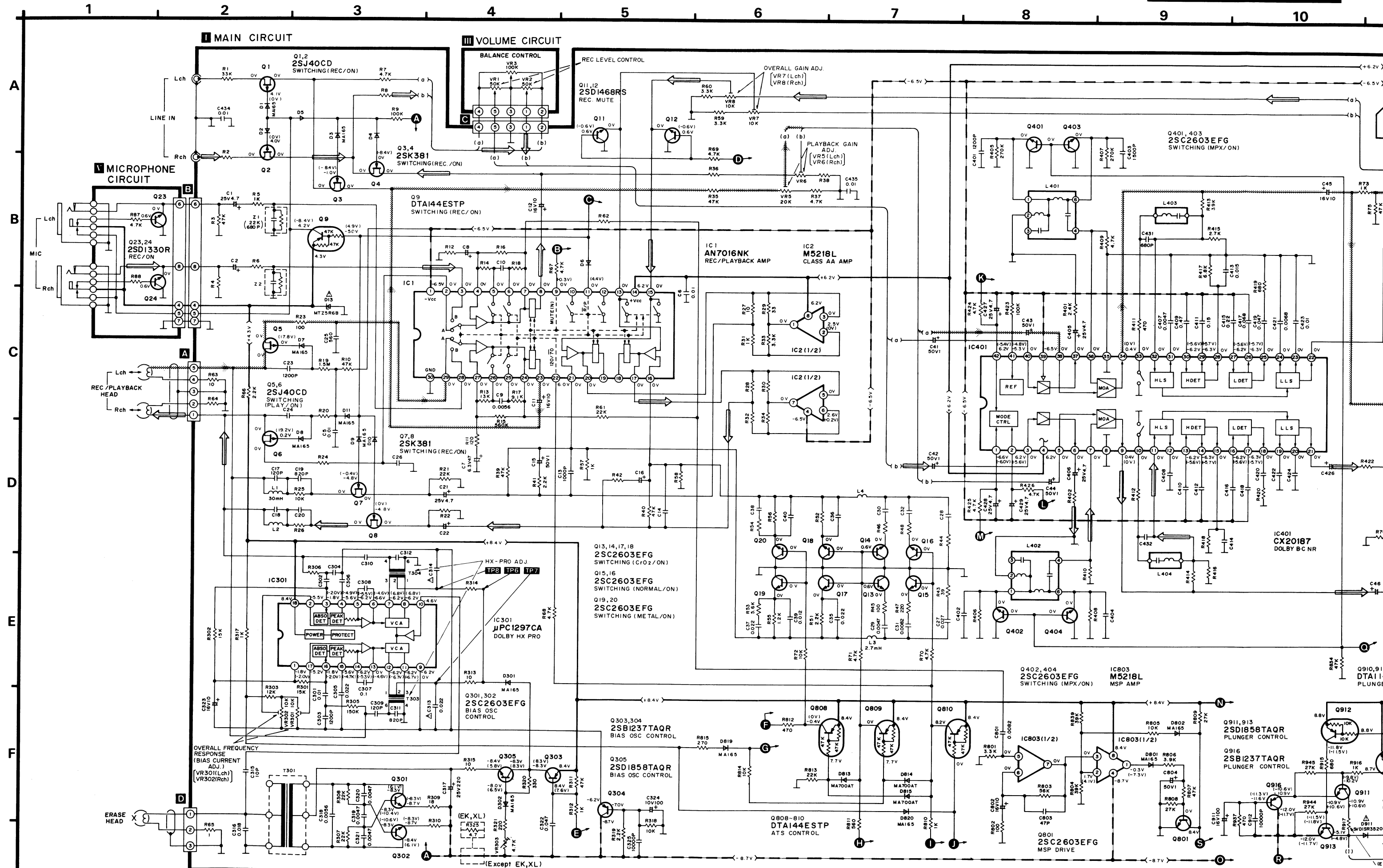
## HOLDER P.C.B.

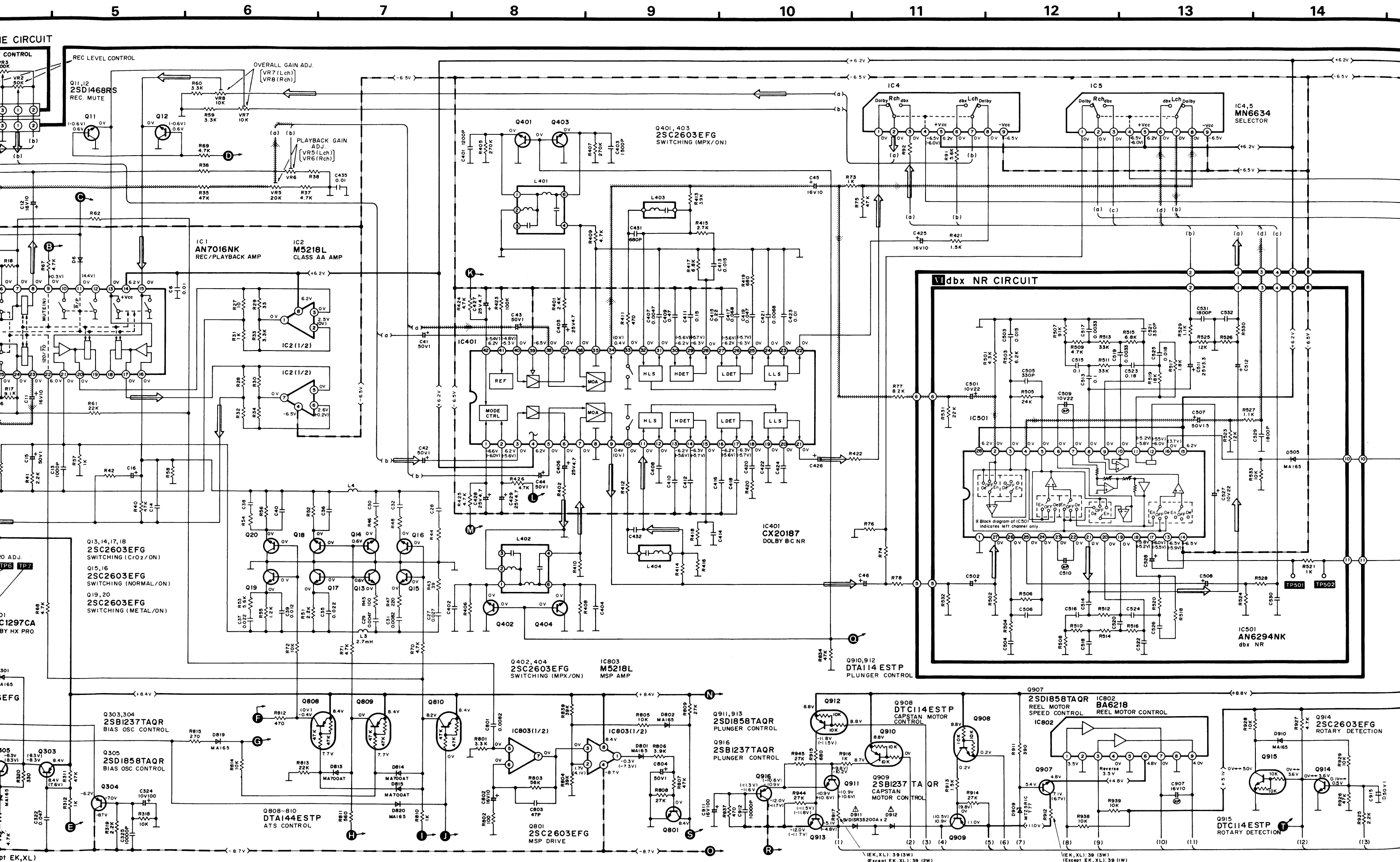






**MECHANISM SW P.C.B. (1)****MECHANISM SW P.C.B. (2)****MECHANISM P.C.B.****WIRING CONNECTION DIAGRAM****POWER SUPPLY P.C.B.****MAIN P.C.B.**







## VII HOLDER LED CIRCUIT

## SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

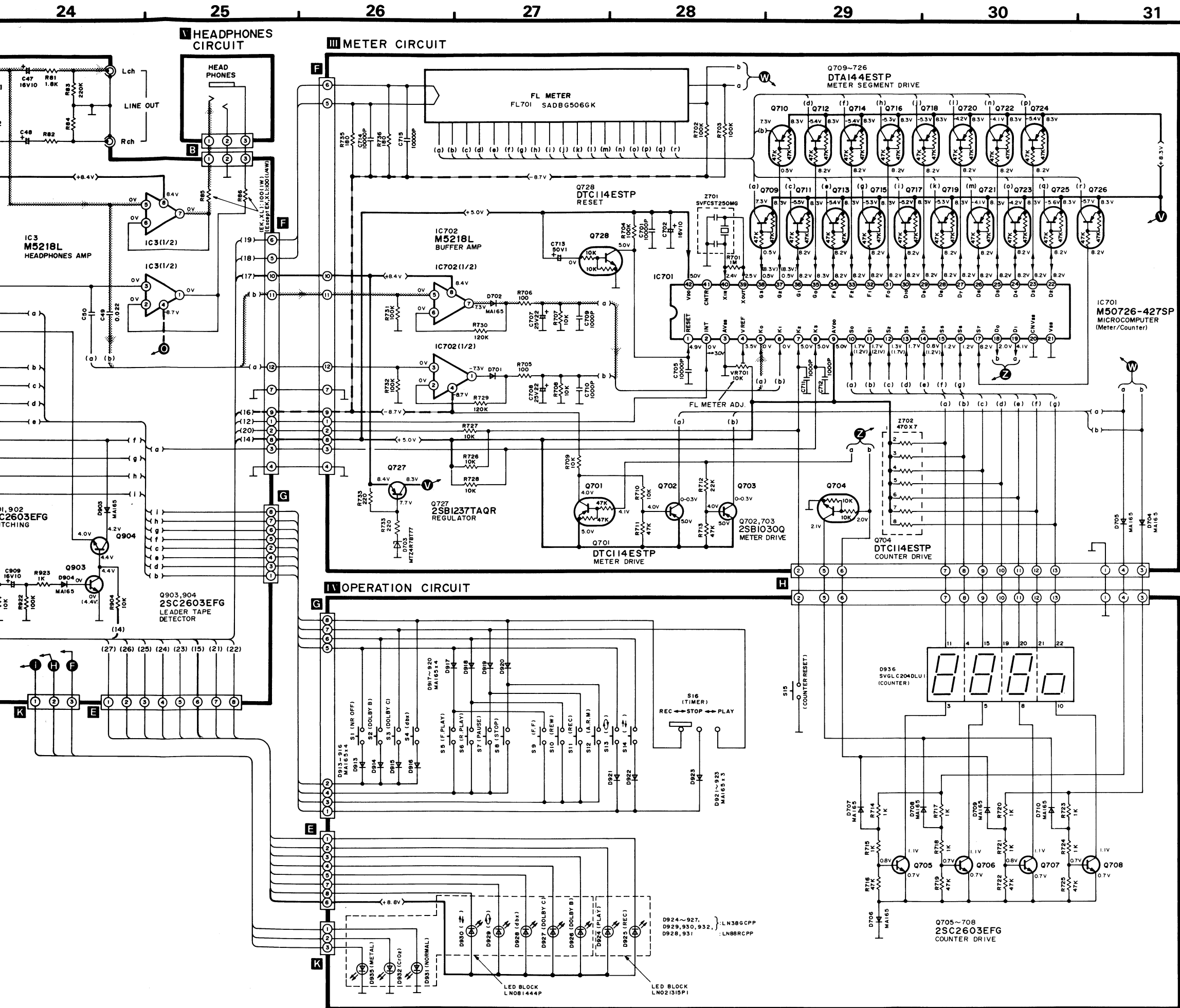
## Notes:

- S1 : NR off switch in "off" position.
  - S2 : Dolby B NR switch in "off" position.
  - S3 : Dolby C NR switch in "off" position.
  - S4 : dbx NR switch in "off" position.
  - S5 : Forward-side Playback switch in "off" position.
  - S6 : Reverse-side Playback switch in "off" position.
  - S7 : Pause switch in "off" position.
  - S8 : Stop switch in "off" position.
  - S9 : F.F. switch in "off" position.
  - S10 : Rew. switch in "off" position.
  - S11 : Record switch in "off" position.
  - S12 : Auto rec. mute switch in "off" position.
  - S13 : Reverse mode selector ( ) in "off" position.
  - S14 : Reverse mode selector ( ) in "off" position.
  - S15 : Tape counter reset button in "off" position.
  - S16 : Timer stand-by switch in "off" position.
  - S601 : Power switch in "on" position.
  - S602 : Voltage selector in "240V" position.
  - (EK, XL, XA, XB) areas
  - S1001 : Forward-side Rec. inhibit switch in "off" position.
  - S1002 : ATS (120/70μs) in "off (70μs)" position.
  - S1003 : ATS (Metal/CrO<sub>2</sub>) in "off (Metal)" position.
  - S1004 : Reverse-side Rec. inhibit switch in "off" position.
  - S1005 : Pack switch in "off" position.
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.  
1K=1,000 (Ω), 1M=1,000K (Ω)
- Capacity are in micro-farads (μF) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
- ( ) ..... Voltage values at record mode.
- For measurement us EVM.
- Important safety notice  
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- (—+B—) indicates +B (bias).  
• (—B—) indicates -B (bias).  
• ( ) indicates the flow of the playback signal.  
• ( ) indicates the flow of the record signal.

## \* Caution !

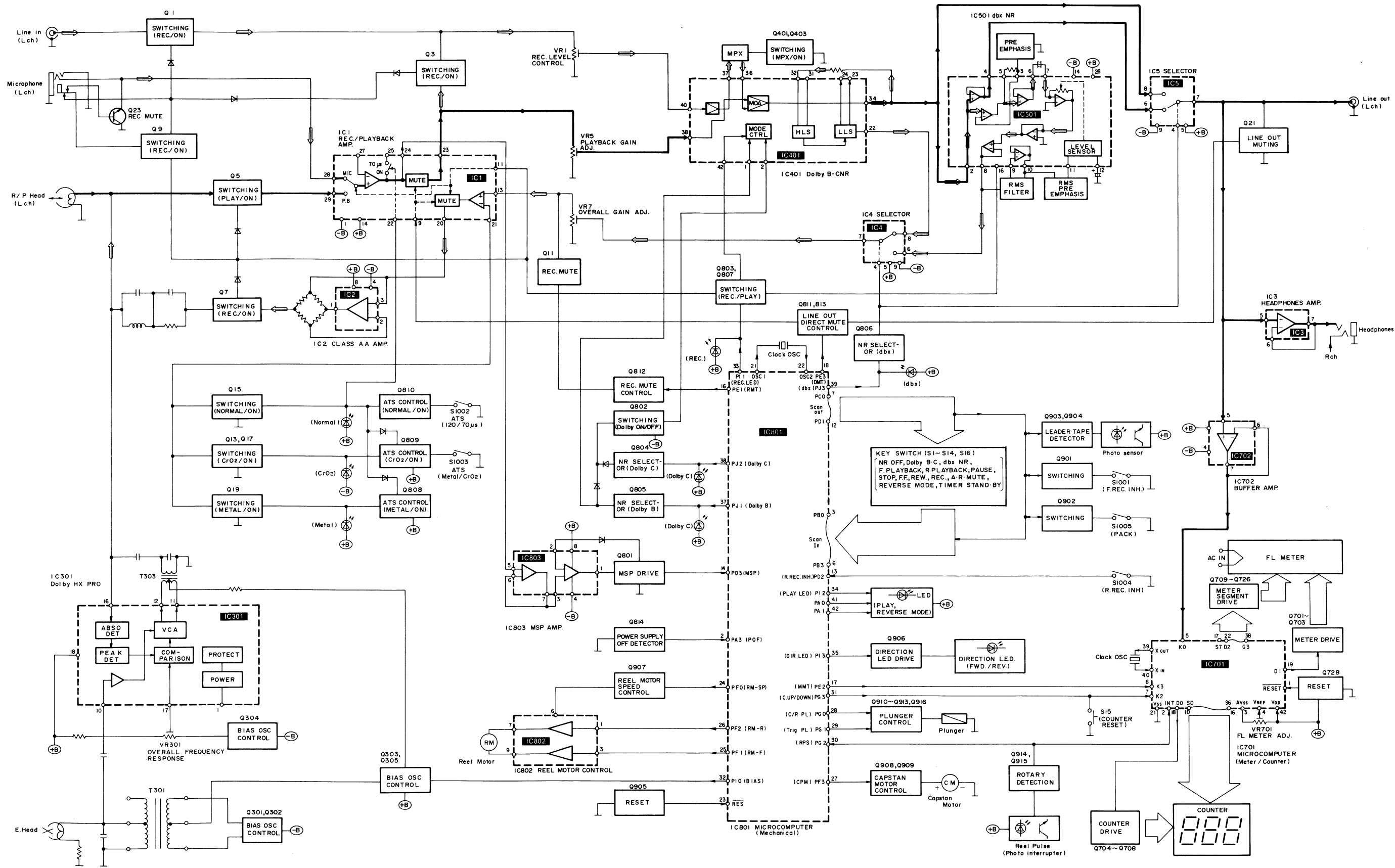
IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair.

- \* Cover the parts boxes made of plastics with aluminum foil.
- \* Ground the soldering iron.
- \* Put a conductive mat on the work table.
- \* Do not touch the legs of IC or LSI with the fingers directly.





## BLOCK DIAGRAM



## NOTES:

- (→): Playback signal  
(⇄): Recording signal

## REPLACEMENT

Notes: \* Important safety notes  
Components identified by  
manufacturer's symbol  
\* Bracketed indication  
Parts without these

Ref. No.	Part No.
<b>INTEGRATED CIRCUITS</b>	
IC1	AN7016NK
IC2	MS218L
IC3	MS218L
IC4	MN6634
IC5	MN6634
IC301	UPC1297CA
IC401	CX20187
IC501	AN6294NK
IC701	MS0726-42TSP
IC702	MS218L
IC801	LC6520C-3658
IC802	BA6218
IC803	MS218L
<b>TRANSISTORS</b>	
Q1	2SJ40CD
Q2	2SJ40CD
Q4	2SK381
Q5	2SJ40CD
Q6	2SJ40CD
Q7	2SK381
Q8	2SK381
Q9	DTA144ESTP
Q11	2SD1468R
Q12	2SD1468R
Q13	2SC2603EFG
Q14	2SC2603EFG
Q15	2SC2603EFG
Q16	2SC2603EFG
Q17	2SC2603EFG
Q18	2SC2603EFG
Q19	2SC2603EFG
Q20	2SC2603EFG
Q21	2SD1468R
Q22	2SD1468R
Q23	2SD1330R
Q24	2SD1330R
Q301	2SC2603EFG
Q302	2SC2603EFG
Q303	2SB1237TAQR
Q304	2SB1237TAQR
Q305	2SD1858TAQR
Q306	DTA144ESTP
Q307	DTA144ESTP
Q308	DTA144ESTP
Q309	DTA144ESTP
Q401	2SC2603EFG
Q402	2SC2603EFG
Q403	2SC2603EFG
Q404	2SC2603EFG
Q601	2SD1762DE
Q602	2SB1185DEF
Q603	2SA1115E
Q604	2SC1846-Q
Q605	2SD1858TAQR
Q606	2SC2603EFG
Q701	DTA144ESTP
Q702	2SB1030Q
Q703	2SB1030Q
Q704	DTC114ESTP
Q705	2SC2603EFG
Q706	2SC2603EFG
Q707	2SC2603EFG
Q708	2SC2603EFG
Q709	DTA144ESTP
Q710	DTA144ESTP
Q711	DTA144ESTP
Q712	DTA144ESTP
Q713	DTA144ESTP
Q714	DTA144ESTP
Q715	DTA144ESTP

# REPLACEMENT PARTS LIST

Notes : \* Important safety notice :

Components identified by  $\Delta$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

\* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)

Parts without these indications can be used for all areas.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
INTEGRATED CIRCUITS					
IC1	AN7016NK	I.C.REC/PLAYBACK AMP	Q716	DTA144ESTP	TRANSISTOR
IC2	MS218L	I.C.CLASS AA AMP	Q717	DTA144ESTP	TRANSISTOR
IC3	MS218L	I.C.HEAD PHONE AMP	Q718	DTA144ESTP	TRANSISTOR
IC4	MN6634	I.C.SELECTOR	Q719	DTA144ESTP	TRANSISTOR
IC5	MN6634	I.C.SELECTOR	Q720	DTA144ESTP	TRANSISTOR
IC301	UPC1297CA	I.C.DOLBY HX PRO	Q721	DTA144ESTP	TRANSISTOR
IC401	CX20187	I.C.DOLBY B C NR	Q722	DTA144ESTP	TRANSISTOR
IC501	AN6294NK	I.C.DBX NR	Q723	DTA144ESTP	TRANSISTOR
IC701	MS0726-427SP	I.C.MICRO COMPUTER	Q724	DTA144ESTP	TRANSISTOR
IC702	MS218L	I.C.BUFFER AMP	Q725	DTA144ESTP	TRANSISTOR
IC801	LC6520C-3658	I.C.MICRO COMPUTER	Q726	DTA144ESTP	TRANSISTOR
IC802	BA6218	I.C.REEL MOTOR CONTROL	Q727	2SB1237TAQR	TRANSISTOR
IC803	MS218L	I.C.MSP AMP	Q728	DTC114ESTP	TRANSISTOR
TRANSISTORS			Q801	2SC2603EFG	TRANSISTOR
Q1	2SJ40CD	TRANSISTOR	Q802	DTC114ESTP	TRANSISTOR
Q2	2SJ40CD	TRANSISTOR	Q803	DTC114ESTP	TRANSISTOR
Q3	2SK381	TRANSISTOR	Q804	DTA114ESTP	TRANSISTOR
Q4	2SK381	TRANSISTOR	Q805	DTA114ESTP	TRANSISTOR
Q5	2SJ40CD	TRANSISTOR	Q806	DTA114ESTP	TRANSISTOR
Q6	2SJ40CD	TRANSISTOR	Q807	DTA114ESTP	TRANSISTOR
Q7	2SK381	TRANSISTOR	Q808	DTA144ESTP	TRANSISTOR
Q8	2SK381	TRANSISTOR	Q809	DTA144ESTP	TRANSISTOR
Q9	DTA144ESTP	TRANSISTOR	Q810	DTA144ESTP	TRANSISTOR
Q11	2SD1468R	TRANSISTOR	Q811	2SA1115E	TRANSISTOR
Q12	2SD1468R	TRANSISTOR	Q812	2SA1115E	TRANSISTOR
Q13	2SC2603EFG	TRANSISTOR	Q813	2SC2603EFG	TRANSISTOR
Q14	2SC2603EFG	TRANSISTOR	Q814	DTC114ESTP	TRANSISTOR
Q15	2SC2603EFG	TRANSISTOR	Q901	2SC2603EFG	TRANSISTOR
Q16	2SC2603EFG	TRANSISTOR	Q902	2SC2603EFG	TRANSISTOR
Q17	2SC2603EFG	TRANSISTOR	Q903	2SC2603EFG	TRANSISTOR
Q18	2SC2603EFG	TRANSISTOR	Q904	2SC2603EFG	TRANSISTOR
Q19	2SC2603EFG	TRANSISTOR	Q905	2SC2603EFG	TRANSISTOR
Q20	2SC2603EFG	TRANSISTOR	Q906	2SA1115E	TRANSISTOR
Q21	2SD1468R	TRANSISTOR	Q907	2SD1858TAQR	TRANSISTOR
Q22	2SD1468R	TRANSISTOR	Q908	DTC114ESTP	TRANSISTOR
Q23	2SD1330R	TRANSISTOR	Q909	2SB1237TAQR	TRANSISTOR
Q24	2SD1330R	TRANSISTOR	Q910	DTA114ESTP	TRANSISTOR
Q301	2SC2603EFG	TRANSISTOR	Q911	2SD1858TAQR	TRANSISTOR
Q302	2SC2603EFG	TRANSISTOR	Q912	DTA114ESTP	TRANSISTOR
Q303	2SB1237TAQR	TRANSISTOR	Q913	2SD1858TAQR	TRANSISTOR
Q304	2SB1237TAQR	TRANSISTOR	Q914	2SC2603EFG	TRANSISTOR
Q305	2SD1858TAQR	TRANSISTOR	Q915	DTC114ESTP	TRANSISTOR
Q307	DTA144ESTP	TRANSISTOR	Q916	2SB1237TAQR	TRANSISTOR
Q308	DTA144ESTP	TRANSISTOR	DIODES		
Q309	DTA144ESTP	TRANSISTOR	D1	MA165	DIODE
Q401	2SC2603EFG	TRANSISTOR	D2	MA165	DIODE
Q402	2SC2603EFG	TRANSISTOR	D3	MA165	DIODE
Q403	2SC2603EFG	TRANSISTOR	D4	MA165	DIODE
Q404	2SC2603EFG	TRANSISTOR	D5	MA165	DIODE
Q601	2SD1762DE	TRANSISTOR	D6	MA165	DIODE
Q602	2SB1185DEF	TRANSISTOR	D7	MA165	DIODE
Q603	2SA1115E	TRANSISTOR	D8	MA165	DIODE
Q604	2SC1846-Q	TRANSISTOR	D9	MA165	DIODE
Q605	2SD1858TAQR	TRANSISTOR	D10	MA165	DIODE
Q606	2SC2603EFG	TRANSISTOR	D11	MA165	DIODE
Q701	DTA144ESTP	TRANSISTOR	D12	MA165	DIODE
Q702	2SB1030Q	TRANSISTOR	D13	$\Delta$ MTZ5R6B	DIODE
Q703	2SB1030Q	TRANSISTOR	D301	MA165	DIODE
Q704	DTC114ESTP	TRANSISTOR	D302	MA165	DIODE
Q705	2SC2603EFG	TRANSISTOR	D304	MA165	DIODE
Q706	2SC2603EFG	TRANSISTOR	D505	MA165	DIODE
Q707	2SC2603EFG	TRANSISTOR	D601	$\Delta$ SVD1SR35200A	RECTIFIER
Q708	2SC2603EFG	TRANSISTOR	D602	$\Delta$ SVD1SR35200A	RECTIFIER
Q709	DTA144ESTP	TRANSISTOR	D603	$\Delta$ SVD1SR35200A	RECTIFIER
Q710	DTA144ESTP	TRANSISTOR	D604	$\Delta$ SVD1SR35200A	RECTIFIER
Q711	DTA144ESTP	TRANSISTOR	D605	MA165	DIODE
Q712	DTA144ESTP	TRANSISTOR	D606	MA165	DIODE
Q713	DTA144ESTP	TRANSISTOR	D607	MTZ10CT77	DIODE
Q714	DTA144ESTP	TRANSISTOR	D608	MTZ10CT77	DIODE
Q715	DTA144ESTP	TRANSISTOR	D609	MTZ6R2CT77	DIODE
			D610	MTZ10BT77	DIODE

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
D701	MA165	DIODE	VR1	EWK94A033A54	V.R.REC LEVEL
D702	MA165	DIODE	VR2	EWK94A033A54	V.R.REC LEVEL
D703	MTZ4R7BT77	DIODE	VR3	EWK94A033A54	V.R.BALANCE
D704	MA165	DIODE	VR5	EVND4AA00B24	V.R.PLAYBACK GAIN
D705	MA165	DIODE	VR6	EVND4AA00B24	V.R.PLAYBACK GAIN
D706	MA165	DIODE	VR7	EVND4AA00B14	V.R.OVERALL GAIN
D707	MA165	DIODE	VR8	EVND4AA00B14	V.R.OVERALL GAIN
D708	MA165	DIODE	VR301	EVND4AA00B14	V.R.OVERALL FREQUENCY
D709	MA165	DIODE	VR302	EVND4AA00B14	V.R.OVERALL FREQUENCY
D710	MA165	DIODE	VR303	EVND4AA00B53	V.R. ERASE CURRENT ADJ.
D801	MA165	DIODE	VR501	EVND4AA00B53	V.R.DBX TIMING
D802	MA165	DIODE	VR701	EVND1AA00B14	V.R.FL METER ADJ.
D803	MA165	DIODE	COILS AND TRANSFORMERS		
D804	MA165	DIODE	L1	SLQX303-1K	CHOKE COIL
D805	MA165	DIODE	L2	SLQX303-1K	CHOKE COIL
D806	MA165	DIODE	L3	SLQX272-1YT	CHOKE COIL
D807	MA165	DIODE	L4	SLQX272-1YT	CHOKE COIL
D808	MA165	DIODE	L401	QLM9Z10K	M.P.X. COIL
D809	MA165	DIODE	L402	QLM9Z10K	M.P.X. COIL
D810	MA165	DIODE	L403	SLM1B12-K	COIL
D811	MA165	DIODE	L404	SLM1B12-K	COIL
D812	MA165	DIODE	T301	QLB0202	M.P.X. COIL
D813	MA700AT	DIODE	T303	SL09B1-K	OSCILLATOR COIL
D814	MA700AT	DIODE	T304	SL09B1-K	OSCILLATOR COIL
D815	MA700AT	DIODE	T601	$\Delta$ SLT5V32-W	POWER TRANSFORMER
D816	MA165	DIODE	(E, EH, EG)		
D817	MA165	DIODE	T601	$\Delta$ SLT5V33-W	POWER TRANSFORMER
D818	MA165	DIODE	(EK, XL)		
D819	MA165	DIODE	T601	$\Delta$ SLT5V34-W	POWER TRANSFORMER
D820	MA165	DIODE	(XA, XB)		
D901	MA165	DIODE	COMPONENT COMBINATIONS		
D902	MA165	DIODE	Z1	EXRP681K223T	COMPONENT COMBINATION
D903	MA165	DIODE	Z2	EXRP681K223T	COMPONENT COMBINATION
D904	MA165	DIODE	Z701	SVFCS250MG	CERAMIC FILTER
D905	MA165	DIODE	Z702	EXBF8E471J	COMPONENT COMBINATION
D906	$\Delta$ SVD1SR35200A	RECTIFIER	OSCILLATORS		
D907	MA165	DIODE	X801	SVFCSA400MG	CRYSTAL OSC.
D908	MA165	DIODE	DISPLAYS		
D909	MTZ5R1CT77	DIODE	FL701	SADBG506GK	DISPLAY TUBE
D910	MA165	DIODE	SWITCHES		
D911	$\Delta$ SVD1SR35200A	RECTIFIER	S1	EVQQB005R	SW.NR OFF
D912	$\Delta$ SVD1SR35200A	RECTIFIER	S2	EVQQB005R	SW.DOLBY B NR
D913	MA165	DIODE	S3	EVQQB005R	SW.DOLBY C NR
D915	MA165	DIODE	S4	EVQQB005R	SW.DBX NR
D916	MA165	DIODE	S5	EVQQB005R	SW.FORWARD PLAYBACK
D917	MA165	DIODE	S6	EVQQB005R	SW.REVERSE PLAYBACK
D918	MA165	DIODE	S7	EVQQB005R	SW.PAUSE
D919	MA165	DIODE	S8	EVQQB005R	SW.STOP
D920	MA165	DIODE	S9	EVQQB005R	SW.F.F.
D921	MA165	DIODE	S10	EVQQB005R	SW.REW
D922	MA165	DIODE	S11	EVQQB005R	SW.RECORD
D923	MA165	DIODE	S12	EVQQB005R	SW.AUTO REC MUTE
D924	LN38GCPP	L.E.D	S13	EVQQB005R	SW.REVERS MODE
D925	LN38GCPP	L.E.D	S14	EVQQB005R	SW.REVERS MODE
D926	LN38GCPP	L.E.D	S15	EVQQB005R	SW.TAPE COUNTER RESET
D927	LN38GCPP	L.E.D	S16	SSS147-1	SW.TIMER STAND BY
D928	LN38GCPP	L.E.D	S601	$\Delta$ ESB8249V	SW.POWER
D929	LN38GCPP	L.E.D	S602	$\Delta$ SSR187-1	SW.VOLTAGE SELECTOR
D930	LN38GCPP	L.E.D	(EK, XA, XB)		
D931	LN38GCPP	L.E.D	(XL)		
D932	LN38GCPP	L.E.D	S1001	SMQA1252	SW.FORWARD REC INHIBIT
D933	SLV31MC3	L.E.D	S1002	SMQA1252	SW.ATS
D934	SLV31MC3	L.E.D	S1003	SMQA1252	SW.ATS
D935	LN48YCPPU	L.E.D	S1004	SMQA1252	SW. REVERSE REC INHIBIT
D936	SVGLC204DLU1	L.E.D	S1005	SMQA1252	SW.PACK
VARIABLE RESISTORS					

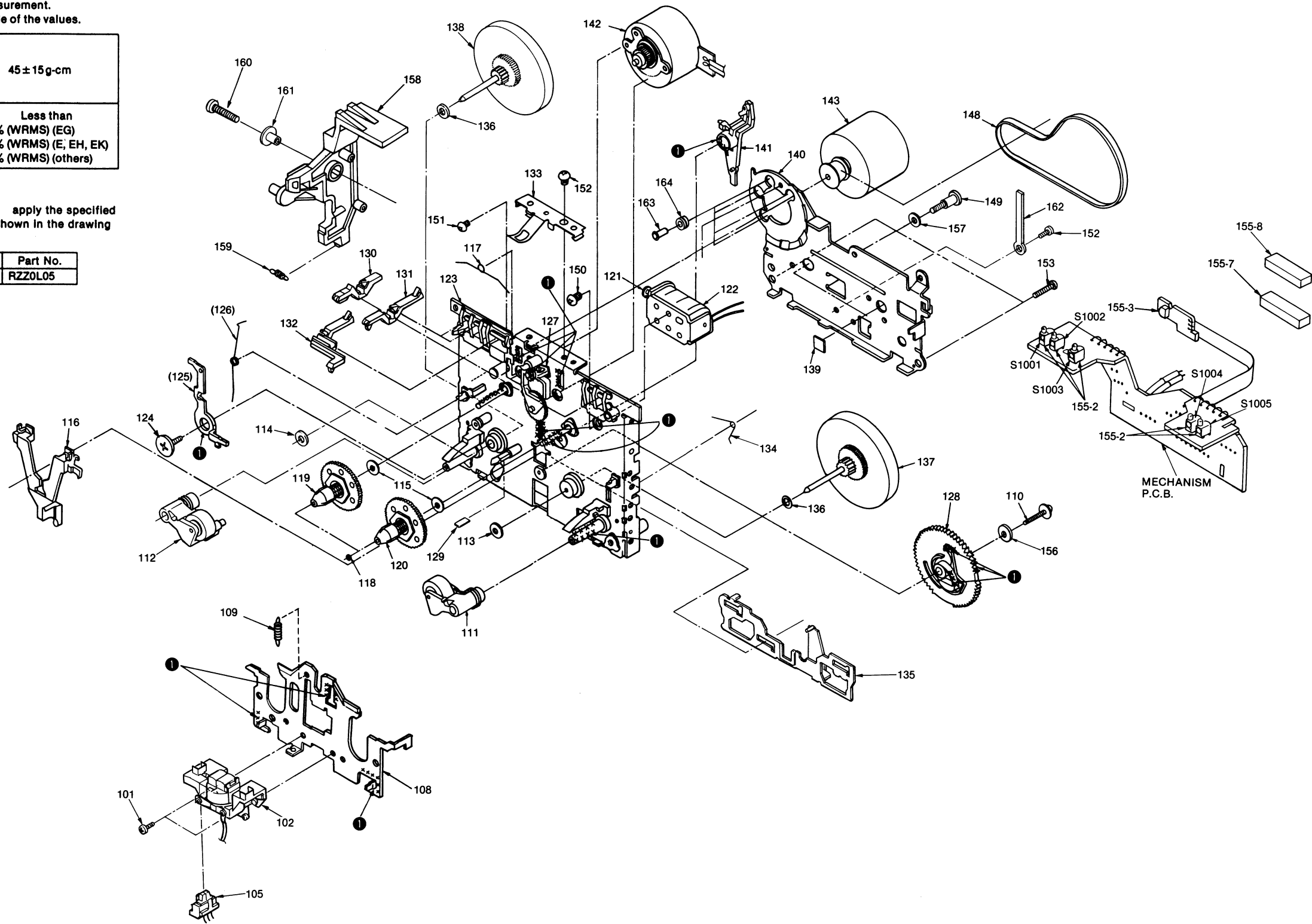
MECHANICAL PARTS LOCATION

SPECIFICATIONS  
NOTE: The value indicated by the torque tape may fluctuate during torque measurement. In that case, obtain the middle of the values.

Takeup tension * Use cassette torque meter.....QZZSRKCT	45 ± 15 g-cm
Wow and flutter * Use test tape .....QZZCWAT	Less than 0.07 % (WRMS) (EG) 0.08 % (WRMS) (E, EH, EK) 0.08 % (WRMS) (others)

NOTES:  
• When changing mechanism parts, apply the specified grease to the are marked "x x" shown in the drawing "Mechanical Parts Location".

Ref. No.	Part Name	Part No.
①	MOLYKOTE	RZZ0L05



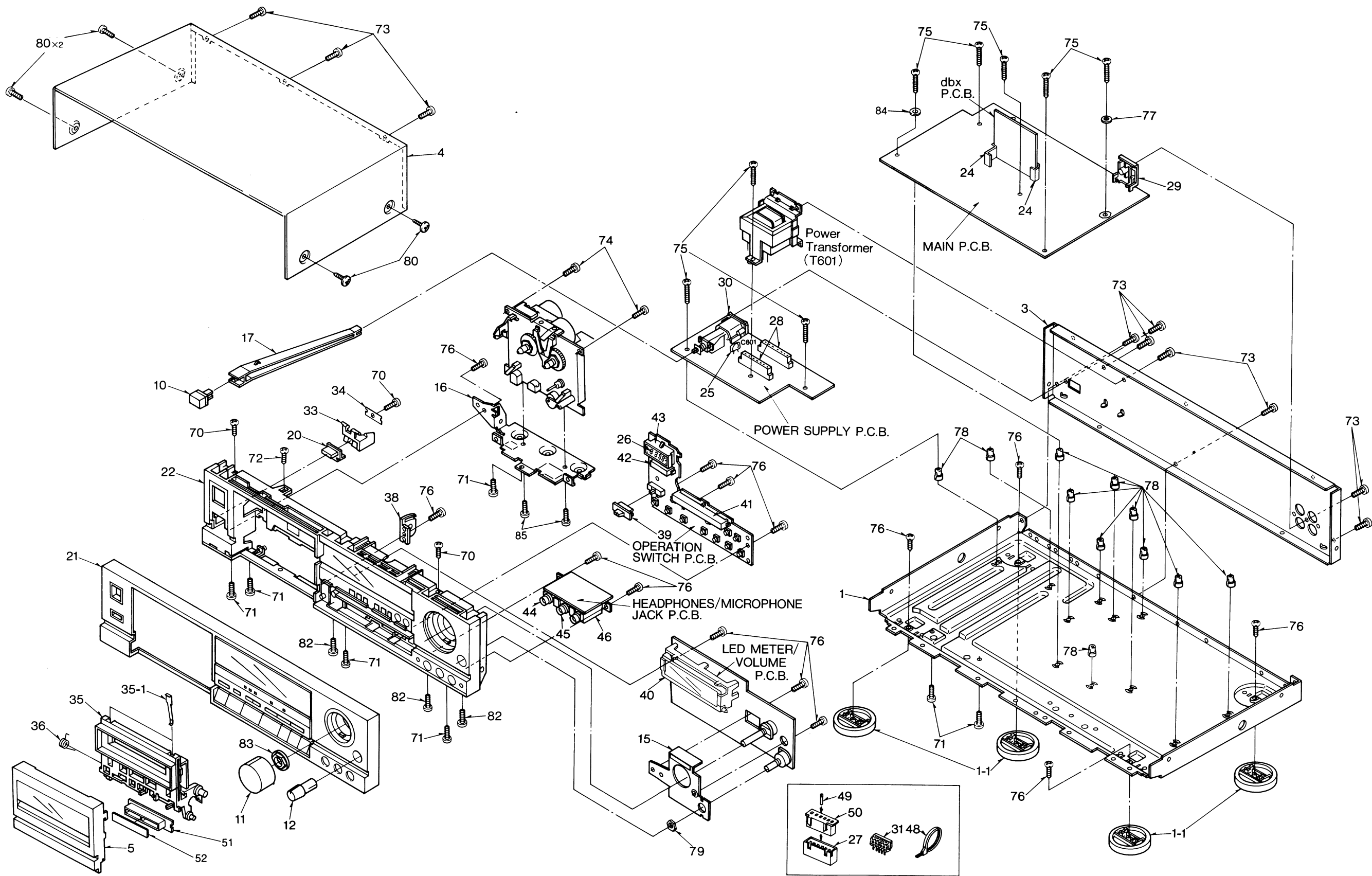
159 160	158 151	152 150 142 162	161 163 164 141	143	157 148 149 162	156 153 163	164	165
124 125 126	132 130 131 123	133 127 121	122 134 140 139 136	137 128	155-2 155-3	155-7 155-8		
101 106 116 102 101 112 107	104 109 105 102 119 114	118 120 115 108 111 113 117			110			

REPLACEMENT PARTS

Ref. No.	Part No.
CASSETTE DECK	
101	XYN2+C5
102	SMQA1269
105	SMQA1228
108	SMQA1229
109	SMQA1004
110	SMQA1230
111	SMQA1231
112	SMQA1232
113	SMQA1007
114	SMQA1091
115	SMQA1014
116	SMQA1056
117	SMQA1027
118	SMQA1010
119	SMQA1013
120	SMQA1026
121	SMQA1212
122	SMQA1233
123	SMQA1257
124	SMQA1235
125	SMQA1055
126	SMQA1012
127	SMQA1061
128	SMQA1259
129	SMQA1054
130	SMQA1282
131	SMQA1259
132	SMQA1237



CABINET PARTS LOCATION



21	5	10	22	11	17	12	20	4	16	15	25	1	24	1-1	24	24	3	24	1-1																						
36	35	35-1		33	34	38		44	45	46	26	42	40	43	39	30	41	28	49	50	27	31	48	29																	
80x2			70	52	51	83	71	72	82	71	70	82	73	71	80x2	70	76	85	71	82	70	74	75	76	79	76	76	84	76	75	71	78	76	76	75	73	77	78	73	76	73

REPLACEMENT PARTS

Notes : \* Important safety  
Components id  
manufacturer's  
\* Bracketed indic  
Parts without th  
\* "K" mark parts  
\* "S" mark parts  
Parts other than

Ref. No.	Part No.
CABINET AND CHASSIS	
1	SKUSB608-K
1-1	SKL313
3	SGP7160-1J
(EK)	
3	SGP7160-1K
(XL)	
3	SGP7160-1L
(XA, XB)	
3	SGP7160W
(E)	
3	SGP7160X
(EH, EG)	
4	SKC2111K99
4	SKC2111S98
5	SGE1914
5	SGE1914-1
10	SBC666-5
10	SBC666
11	SYTM10ZCO
11	SYTM10ZSO
12	SBDM10ZKO
12	SBDM10MAO
15	SUWSB608R
16	SMQ30051
17	SUB268
20	SBC736-1
20	SBC736
21	SGWSB608-K
21	SGWSB608-S
22	SGXS608-K
22	SGXS608-S
24	SME103-4
25	SMX897
26	SVGLC204DL
27	EMCS1350ZL
27	SJSD0805
27	SJT3319
27	SJT3511
28	SJS501
29	SJF3057N
30	SJSD16
(XL)	

Ref. No.	Part No.
PACKING MATERIAL	
P1	SPGM115
P1	SPGM116
P2	SPS5037-1
P3	SPS5038-1
P4	XZB50X65B0
ACCESSORIES	
A1	SQF13188
(XB)	
A1	SQF13189
(E, EH)	
A1	SQF13190
(XL, EK, XA)	



# Service Manual

Cassette Deck

## RS-B608R

**Supplement**

**dbx\*\*/Dolby NR Equipped  
Stereo Cassette Deck**

Color

(S) ... Silver Type  
(K) ... Black Type

**DOLBY B-C NR HX PRO**

Area

Country Code	Area	Color
(E)	Continental Europe.	(K)(S)
(EK)	United Kingdom.	(K)(S)
(EG)	F.R. Germany.	(K)(S)
(EH)	Holland.	(K)(S)
(XA)	Asia, Latin America, Middle Near East, Africa and Oceania.	(K)(S)
(XL)	Australia.	(K)(S)
(XB)	Saudi Arabia.	(K)(S)

\* HX Pro headroom extension originated by Bang Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation.

"DOLBY", the double-D symbol, and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

\*\* The term dbx is a registered trademark of dbx Inc.

Please file and use this supplement manual together with the service manual for Model No. RS-B608R, Order No. HAD8804111C8.

### Note:

- This supplement has been issued to inform you that the correct an error in the "Mechanical Parts Location" on pages 33, 34 and "Replacement Parts List" on page 35.

## CORRECTION

### REPLACEMENT PARTS LIST (Page 35 of service manual.)

Ref. No.	Change of Part No.		Part Name & Description	Remarks
	ORIGINAL	➡ NEW		
CASSETTE DECK				
123	SMQA1257	SMQA1285	CHASSIS ASS'Y	Correction
158	—	SMQA1267—1	EJECT ARM	Addition
159	SMQA1267—1	SMQA1019	SPRING	Correction

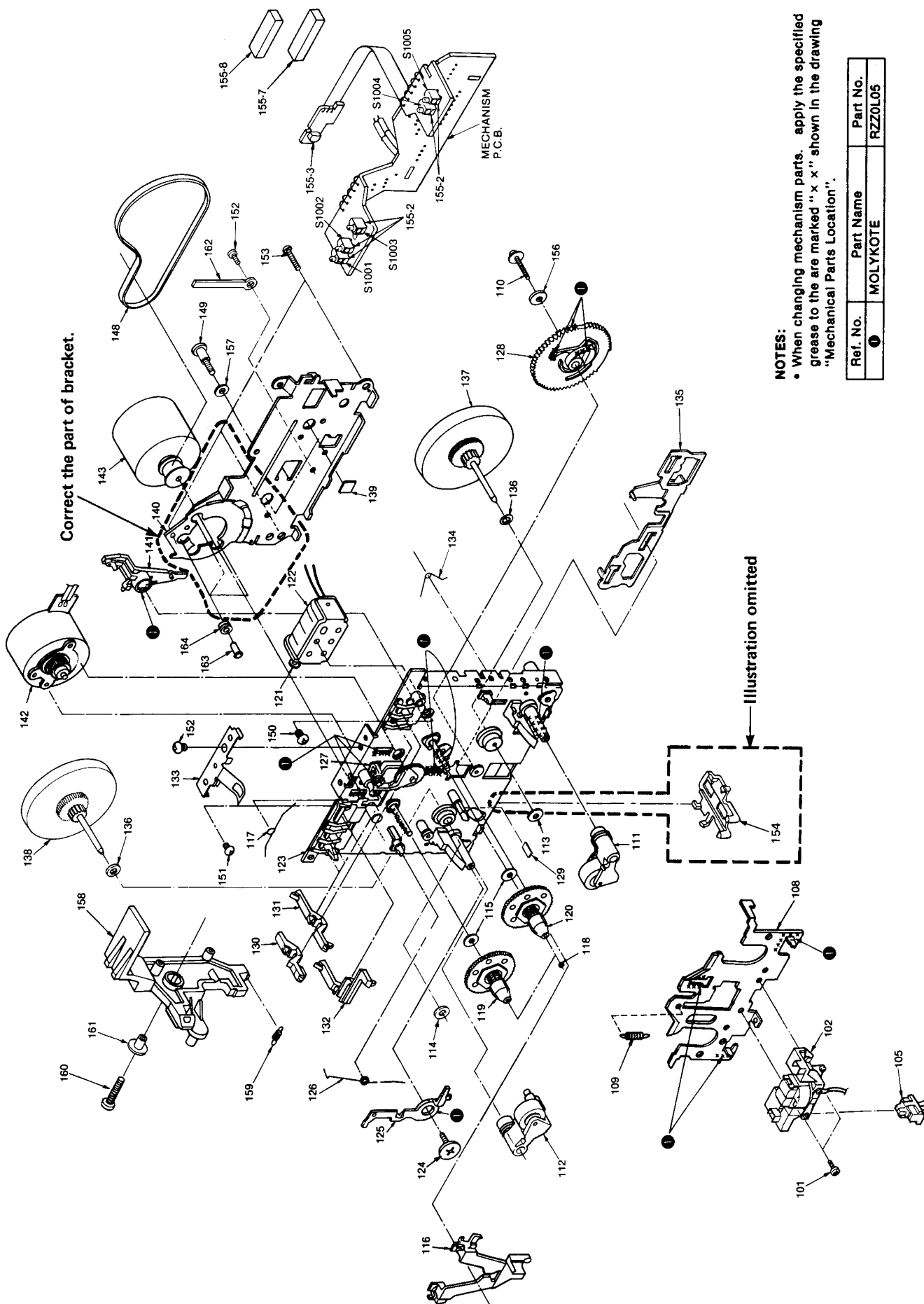
— Continue —

# Technics

**Matsushita Electric Industrial Co., Ltd.**  
Central P.O. Box 288, Osaka 530-91, Japan



(Pages 33, 34 of service manual.)

**MECHANICAL PARTS LOCATION**

**NOTES:**  
 • When changing mechanism parts, apply the specified grease to the are marked "x" shown in the drawing "Mechanical Parts Location".

Ref. No.	Part Name	Part No.
①	MOLYKOTE	RZ20L05

# Service Manual

Cassette Deck

RS-B608R

dbx\*/Dolby NR Equipped  
Stereo Cassette Deck

Supplement

\*  
DOLBY B-C NR HX PRO

Color

(S) ... Silver Type  
(K) ... Black Type

Area

Color	Area
(S) (K)	(E) ..... Continental Europe.
(S) (K)	(EK) ..... United Kingdom.
(S) (K)	(EG) ..... F.R. Germany.
(S) (K)	(EH) ..... Holland.
(S) (K)	(XA) ..... Asia, Latin America, Middle Near East, Africa and Oceania.
(S) (K)	(XL) ..... Australia.
(S) (K)	(XB) ..... Saudi Arabia.

CORRECTION

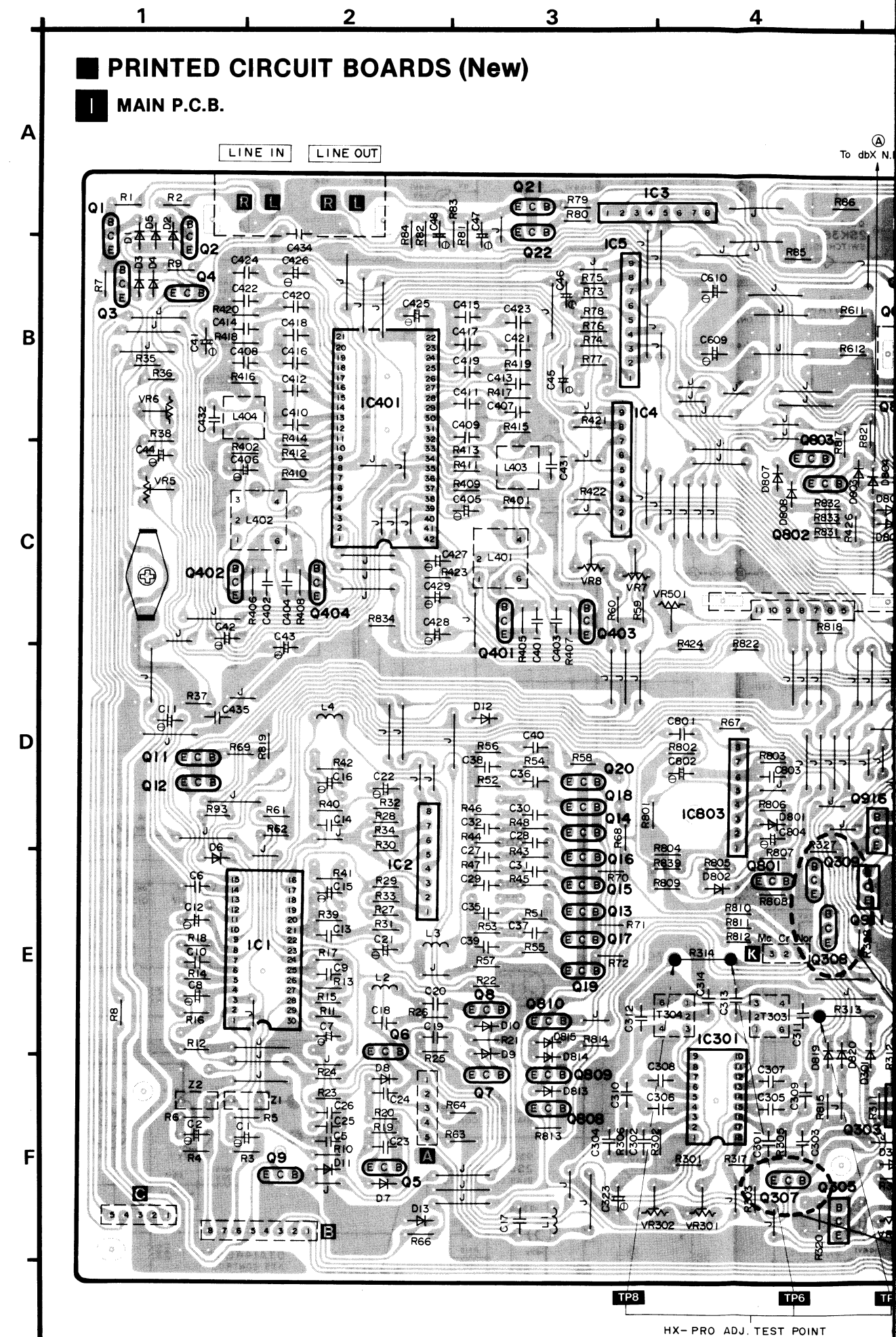
Please file and use this supplement manual together with the service manual for Model No. RS-B608R, Order No. HAD8804111C8.

- The schematic diagram of the RS-B608R on Page 22~25 of the Service Manual (Order No. HAD8804111C8) was changed. (Transistors Q307~Q309 were added.)
- The replacement parts list on page 31 has not been modified.

Matsushita Electric Industrial Co., Ltd.  
Central P.O. Box 288, Osaka 530-91, Japan

## PRINTED CIRCUIT BOARDS (New)

### MAIN P.C.B.



**ual**  
 cassette Deck  
**608R**

Color

(S) ...Silver Type  
 (K) ...Black Type

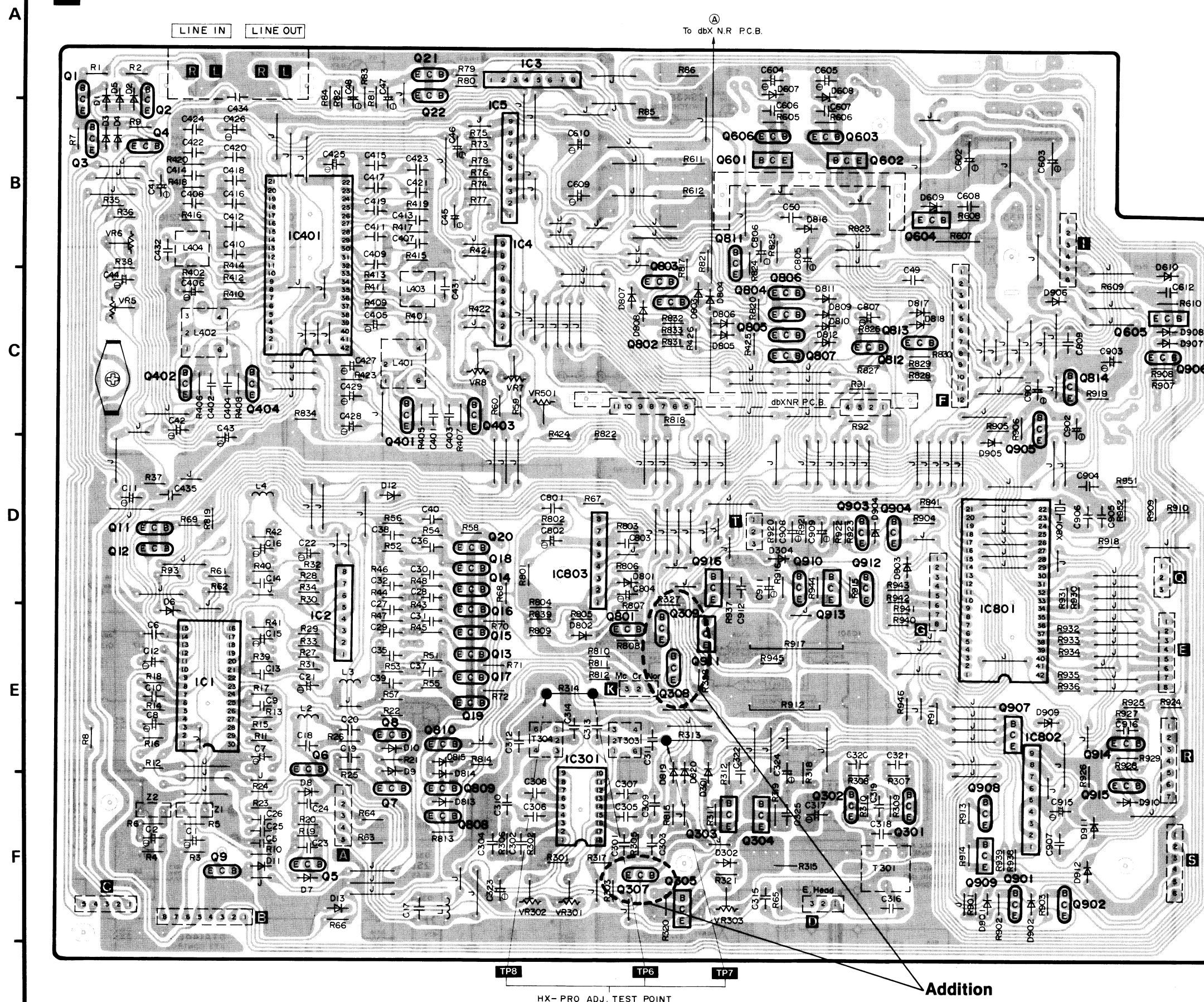
Area

Continental Europe.  
 United Kingdom.  
 F.R. Germany.  
 Holland.  
 Asia, Latin  
 America, Middle  
 East, Africa  
 and Oceania.  
 Australia.  
 Saudi Arabia.

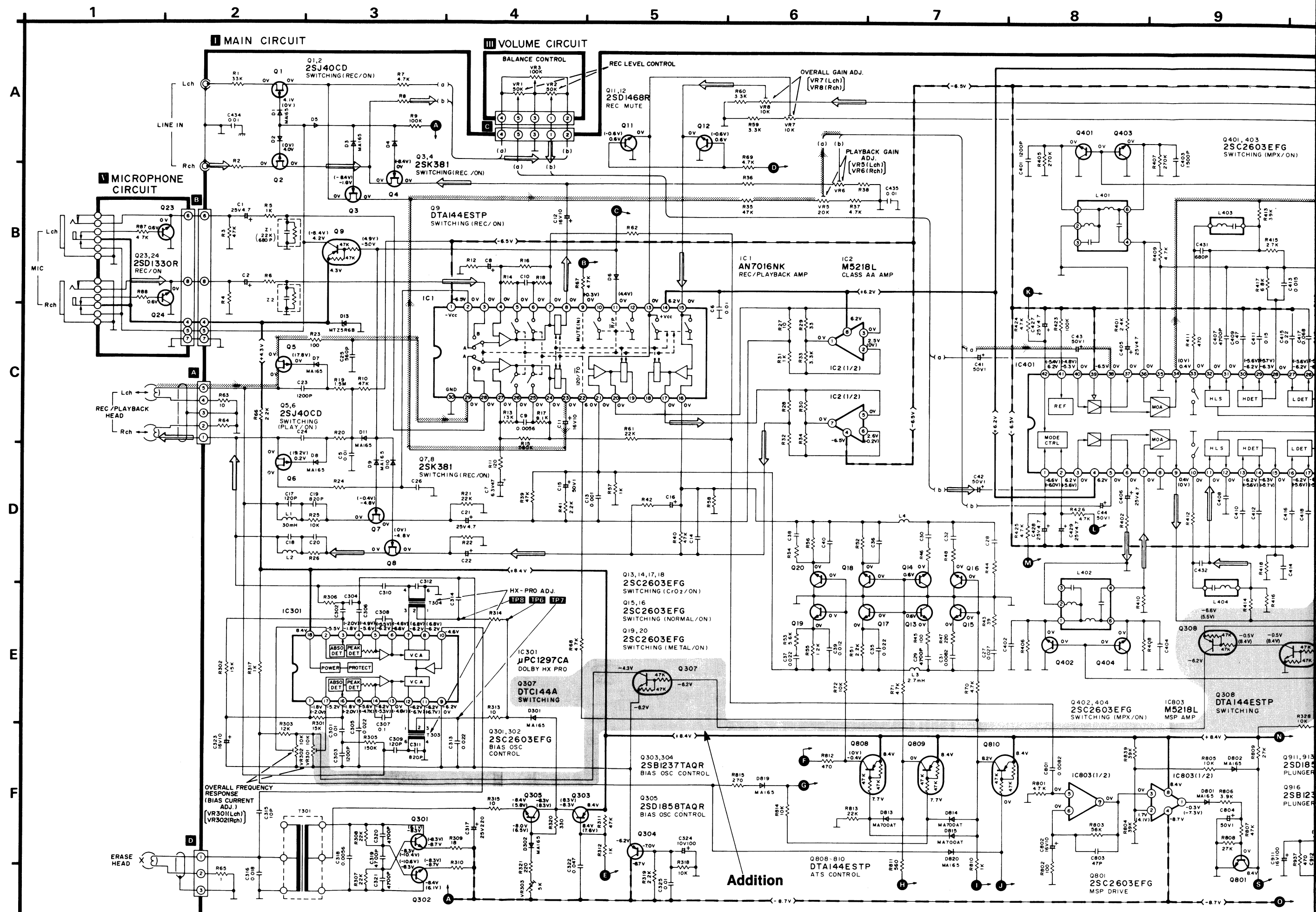
Industrial Co., Ltd.  
 588, Osaka 530-91, Japan

**PRINTED CIRCUIT BOARDS (New)**

**I MAIN P.C.B.**









FRANÇAIS

METHODES DES MEASURES ET REGLAGES

Appareils de mesurage

- Voltmètre électronique
  - Oscilloscope
  - Compteur de fréquence numérique
  - Oscillateur de fréquence audio
- A.T.T. (Atténuateur)
  - Voltmètre à C.C.
  - Résistance (600Ω)

Reglage Azimutal de la tete

1. Faire jouer la portion du réglage de l'azimuth (8kHz, -20dB) de la bande d'essai (QZZCFM). Ajuster la vis de la mise au point azimuthale jusqu'à ce que les sorties du canal de gauche et du canal de droite soient maximisées et que la forme d'onde de Lissajous, comme il est illustré, approche de 0 degré.

Nota:

Si le canal de gauche et canal de droite ne sont pas maximisés au même point, régler le point où les niveaux de chaque canal sont maximisés et égaux.

2. Effectuer le même réglage sur le mode d'audition.

Vérification de la différence de niveau pour les deux sens de rotation

3. Introduire une bande métal vierge prévue pour les essais (QZZCPZ) et vérifier que la différence de niveau pour les deux sens de rotation est inférieure à 1dB.
4. Après cela, mettre une goutte de vernis de blocage sur la vis de réglage de l'azimut.

Reglage de la Vitesse de Defilement

1. Faire jouer la portion médiane de la bande d'essai (QZZCWAT).
2. Régler le régulateur de tension dans le moteur de telle sorte que la sortie soit en deçà de la valeur standard.

Reglage de L'amplification de Lecture

1. Faire jouer la partie réglée de l'amplification (315Hz, 0dB) de la bande d'essai (QZZCFM).
2. Régler VR5 (canal de gauche) et VR6 (canal de droite) de telle sorte que la sortie soit en deçà de la valeur standard.

Reponse en Frequence de la Lecture

1. Faire jouer la partie de la réponse en fréquence (315Hz, 12.5kHz, -63Hz, -20dB) de la bande d'essai (QZZCFM).
2. S'assurer que la réponse en fréquence soit en deçà de la plage montrée dans la Fig. 6, à la fois pour le canal de gauche et le canal de droite.

Reponse en Frequence Totale

1. Introduire la bande d'essai vierge normale (QZZCRA) et régler l'appareil sur le mode d'intermission d'un disque.

2. Appliquer un signal d'entrée de référence (1kHz, -24dB) par l'intermédiaire d'un atténuateur.

3. Diminuer le signal de 20dB et régler la fréquence de 50Hz~15kHz.

4. Enregistrer le balayage de fréquence.

5. Faire jouer le signal enregistré et s'assurer qu'il soit en deçà de la plage montrée à la Fig. 8 en comparaison à la fréquence de référence (1kHz).
6. S'il n'est pas en deçà de la plage standard, régler VR301 (canal de gauche) et VR302 (canal de droite) de telle sorte que le niveau de fréquence soit en deçà de la plage standard.

7. Répéter les étapes 2~6 ci-dessus en utilisant la bande CrO<sub>2</sub> (QZZCRX) et la bande métallisée (QZZCRX) en augmentant la plage de fréquence à 16kHz (50Hz~16kHz).

8. S'assurer que le niveau soit en deçà de la plage montrée à la Fig. 9.

Reglage de L'amplification Totale

1. Introduire la bande d'essai vierge normale (QZZCRA) et régler l'appareil sur le mode d'intermission d'un disque.

2. Appliquer un signal d'entrée de référence (1kHz, -24dB). Diminuer la sortie de telle sorte que son niveau devienne de 0.4V.

3. Enregistrer ce signal d'entrée.
4. Faire jouer le signal enregistré à l'étape 3 ci-dessus, et s'assurer que la sortie en deçà de la valeur standard.

5. Si elle n'est pas en deçà de la valeur standard, régler VR7 (canal de gauche) et VR8 (canal de droite).

6. Répéter les étapes 2~5 ci-dessus jusqu'à ce que la sortie soit en deçà de la valeur standard.

Reglage du Mesureur Fluorescent

1. Introduire la bande d'essai vierge normale (QZZCRA) et appliquer un signal d'entrée de référence (1kHz, -24dB) sur le mode d'intermission d'un disque.

2. En utilisant un atténuateur, le régler jusqu'à ce que la tension des bornes "LINE OUT" (sortie de ligne) des platines de magnétophones soit de 0.4V.
3. Ajuster VR701 de telle sorte que le segment "0dB" soit légèrement éclairé.

Réglage de la synchronisation dbx

1. Placer l'interrupteur du réducteur de bruit sur la position dbx.

2. Lire la partie de la bande d'essai (QZZCFM) qui contient l'enregistrement prévu pour le réglage du gain.
3. Brancher un voltmètre entre TP501 et TP502.

4. Régler VR501 de manière que la sortie ait la valeur standard.

Réglage de HX-PRO

1. Introduire une bande métal vierge prévue pour les essais (QZZCRZ) et régler l'appareil en mode pause d'enregistrement.

2. Brancher un voltmètre continu entre TP-7 (L-CH) et TP-6, et TP-8 (R-CH) et TP-6.
3. Régler L303 (L-CH) et L-304 (R-CH) de manière que la sortie ait la valeur standard.

ESPAÑOL

METODOS DE AJUSTE Y MEDIDA

Instrumento de medición

- EVM (Voltímetro electrónico)
  - Osciloscopio
  - Frecuencímetro digital
  - Oscilador AF
- ATT (Atenuador)
  - Voltímetro CC
  - Resistor (600Ω)

Ajuste Azimutal de Cabeza

1. Reproducir la porción de ajuste azimutal (8kHz, -20dB) de la cinta de prueba (QZZCFM). Variar el tornillo de ajuste azimutal hasta que las salidas del CH-I y CH-D se maximicen y forma de onda de lissajous, como ilustrado, se acerque a grado 0.

Nota:

Si CH-I y CH-D no son maximizados en el mismo punto, ajustar al punto donde los niveles de cada canal sean maximizados e igualados.

2. Efectuar el mismo ajuste en la modalidad de reproducción.

Comprobación de la diferencia de nivel de giro hacia adelante y hacia atrás

3. Reproduzca la parte del ajuste de ganancia (315Hz, 0dB) de la cinta de prueba (QZZCFM) y luego asegúrese de que la diferencia de nivel de giro hacia adelante y hacia atrás sea menor que 1dB.
4. Después del ajuste, aplique pintura de fijación al tornillo de ajuste del azimut.

Ajuste de Velocidad de Cinta

1. Reproducir la porción de la cinta prueba (QZZCWAT).
2. Ajustar el VR en el motor de manera que salida esté dentro del valor estándar.

Ajuste de Ganancia de Reproduccion

1. Reproducir la porción ajustada de ganancia (315Hz, 0dB) de la cinta de prueba (QZZCFM).
2. Ajustar VR5 (CH-I) y VR6 (CH-D) de manera que la salida esté dentro del valor estándar.

Respuesta de Frecuencia de Reproduccion

1. Reproducir la parte de respuesta de frecuencia de reproducción (315Hz, 12.5kHz~63Hz, -20dB) de la cinta de prueba (QZZCFM).
2. Asegurarse de que la respuesta de frecuencia esté dentro de la gama mostrada en la Fig. 6 para ambos CH-I y CH-D.

Respuesta de Frecuencia Total

1. Poner una cinta virgen normal (QZZCRA) y poner la unidad en la modalidad de Pausa de Grabación.

2. Aplicar la señal de entrada de referencia (1kHz, -24dB) a través de un atenuador.

3. Atenuar la señal por 20dB y ajustar la frecuencia de 50Hz~15kHz.

4. Grabar el barrido de frecuencia.

5. Reproducir la señal grabada y asegurarse de que esté dentro de la gama mostrada en la Fig. 8 en comparación con la frecuencia de referencia (1kHz).
6. Si no está dentro de la gama de frecuencia, ajustar VR301 (CH-I) y VR302 (CH-D) de manera que el nivel de frecuencia esté dentro de la gama estándar.

7. Repetir los pasos 2~6 de arriba utilizando la cinta CrO2 (QZZCRX) y la cinta metálica (QZZCRZ) incrementando la gama de frecuencia a 16kHz (50Hz~16kHz).

8. Asegurarse de que el nivel esté dentro de la gama mostrada en la Fig. 9.

Ajuste de Ganancia Total

1. Insertar la cinta de prueba en blanco normal (QZZCRA) y poner la unidad en modalidad de pausa de Grabación.

2. Aplicar la señal de entrada de referencia (1kHz, -24dB). Atenuar la salida de manera que su nivel se haga 0.4V.

3. Grabar la señal de entrada.
4. Reproducir la señal grabada en el paso 3 de arriba y asegurarse de que la salida esté dentro del valor estándar.

5. Si no está dentro del valor estándar, ajustar VR7 (CH-I) y VR8 (CH-D).

6. Repetir el paso 2~5 de arriba hasta que la salida esté dentro del valor estándar.

Ajuste de Medidor de Fluorescente

1. Insertar la cinta de prueba en blanco normal (QZZCRA) y aplicar una señal de entrada de referencia (1kHz, -24dB) en la modalidad de Pausa de Grabación.

2. Utilizando un atenuador, ajustarlo hasta que la tensión de los terminales "LINE OUT" (salida de línea) de las platinas de cinta sea 0.4V.
3. Ajustar VR701 de manera que el segmento "0dB" esté ligeramente iluminado.

Ajuste de la Sincronizacion dbx

1. Ponga el conmutador de reducción del ruido en la posición dbx.

2. Reproduzca la parte del ajuste de ganancia (315Hz, 0dB) de la cinta de prueba (QZZCFM).
3. Conecte un voltímetro de CC entre TP501 y TP502.

4. Regule VR501 de modo que la salida esté dentro de los valores estándares.

Ajuste de HX-PRO

1. Inserte la cinta de prueba metálica en blanco (QZZCRZ) y ponga el aparato en la modalidad de pausa de grabación.

2. Conecte un voltímetro de CC entre TP7 (L-CH) y TP6, TP8 (R-CH) y TP6.
3. Regule L303 (L-CH) y L304 (R-CH) de modo que la salida esté dentro de los valores estándares.



Cassette Deck

RS-B608R

## DEUTSCH

## MESSUNGEN UND EINSTELL METHODEN

**Meßinstrumente**

- Elektronisches Voltmeter (EVM)
- Oszilloskop
- Digitaler Frequenzmesser
- Audiofrequenz-Oszillator
- Dämpfungswiderstand
- Gleichstrom-Voltmeter
- Widerstand (600Ω)

**Tonkopf-Azimuteinstellung**

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für die Azimuteinstellung (8kHz, -20dB) ab. Drehen Sie die Azimuteinstellschraube so lange, bis die Abgaben des L-K und R-K den Höchstwert erreichen, und die Lissajoscghe wellenfigur sich, wie abgebildet, 0 Grad nähert.

**Anmerkung:**

When L-K und R-K nicht auf demselben Punkt ihren Höchstwert erreichen, stellen Sie beide Kanäle auf den jeweiligen Höchstwert und gleichen dann aus.

2. Nehmen Sie denselben Einstellvorgang in der Wiedergabestellung vor.

**Prüfung des Pegelunterschiedes bei Vorwärts- und Rückwärtsdrehung**

3. Den Abschnitt für Verstärkungseinstellung (315Hz, 0dB) des Prüfbandes (QZZCFM) wiedergeben und sicherstellen, daß der Pegelunterschied bei Vorwärts- und Rückwärtsdrehung kleiner als 1dB ist.
4. Nach der Einstellung Schrauben-Sicherungsmittel an die Azimuth-Einstellschraube geben.

**Bandgeschwindigkeitseinstellung**

1. Spielen Sie den Mittelteil des Testbands (QZZCWAT) ab.
2. Stellen Sie den VR im Motor so ein, daß die Abgabe den Normwert erfüllt.

**Einstellung der Wiedergabeverstärkungsregelung**

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für die Einstellung der Verstärkungsregelung (315Hz, 0dB) ab.
2. Stellen Sie VR5 (L-K) und VR6 (R-K) so ein, daß die Abgabe den Normwert erfüllt.

**Wiedergabefrequenzaang**

1. Spielen Sie auf dem Testband (QZZCFM) den Teil für den Frequenzgang (315Hz, 12,5kHz~63Hz, -20dB) ab.
2. Achten Sie darauf, daß der Frequenzgang für beide Kanäle (L-K, R-K) in dem in Abb. 6 gezeigten Bereich liegt.

### Gesamtfrequenzgang

1. Legen Sie das normale Leertestband (QZZCRA) ein und stellen das Gerät auf Aufnahme-/Pause-Betrieb.
2. Geben Sie über einen Lautstärkeregler ein Bezugseingabesignal (1 kHz, -24 dB) ein.
3. Stellen Sie das Signal auf 20 dB und justieren die Frequenz von 50 Hz ~ 15 kHz.
4. Nehmen Sie das Wobbelsignal auf.
5. Geben Sie das aufgenommene Signal wieder und achten darauf, daß dieses sich im Vergleich zur Bezugsfrequenz (1 kHz) in dem in **Abb. 8** aufgezeichneten Bereich befindet.
6. Sollte das Signal nicht im Normbereich liegen, justieren Sie **VR301** (L-K) und **VR302** (R-K) so, daß der Frequenzpegel mit der Norm übereinstimmt.
7. Wiederholen Sie die Schritte 2~6 und verwenden das CrO<sub>2</sub> Band (QZZCRX) und das Metallband (QZZCRZ). Der Frequenzbereich wird auf 16 kHz (50 Hz ~ 16 kHz) angehoben.
8. Achten Sie darauf, daß sich der Frequenzpegel in dem in **Abb. 9** aufgezeigten Bereich befindet.

### Einstellung der Gesamtverstärkungsregelung

1. Legen Sie das normale Leertestband (QZZCRA) ein und stellen das Gerät auf Aufnahme-/Betrieb.
2. Legen Sie ein Bezugseingabesignal (1 kHz, -24 dB) an. Stellen Sie das Ausgangssignal auf einen Pegel von 0.4 V ein.
3. Nehmen Sie das Eingabesignal auf.
4. Geben Sie das in Schritt 3 oben aufgenommene Signal wieder und achten Sie darauf, daß das Ausgangssignal mit dem Normwert übereinstimmt.
5. Sollte der Wert nicht innerhalb der Norm liegen, justieren Sie **VR7** (L-K) und **VR8** (R-K).
6. Wiederholen Sie die Schritte 2~5 von oben so lange, bis das Ausgangssignal im Normbereich liegt.

### Fluoreszenzanzeigeneinstellung

1. Legen Sie das normale Leertestband (QZZCRA) ein und geben bei Aufnahme-/Pause-Betrieb ein Bezugseingabesignal (1 kHz, -24 dB) ein.
2. Verwenden Sie einen Lautstärkeregler und stellen Sie diesen so ein, daß an den "LINE OUT"-Anschlüssen des Kassettendecks 0.4 V anliegen.
3. Justieren Sie **VR701** so, daß der "-0 dB"-Abschnitt der Anzeige schwach aufluchtet.

### dbx TAKTEINSTELLUNG

1. Den Rauschunterdrückungs-Schalter auf dbx stellen.
2. Den Abschnitt für Verstärkungseinstellung (315 Hz, 0 dB) des Prüfbandes (QZZCFM) wiedergeben.
3. Einen Gleichstrom-Voltmeter zwischen **TP501** und **TP502** anschließen.
4. **VR501** so einstellen, daß der Ausgang dem Sollwert entspricht.

### HX-PRO EINSTELLUNG

1. Die leere Metallband-Prüfkassette (QZZCRZ) einsetzen und das Gerät auf Aufnahmepause schalten.
2. Einen Gleichstrom-Voltmeter zwischen **TP7** (linker Kanal) und **TP6** sowie zwischen **TP8** (rechter Kanal) und **TP6** anschließen.
3. **L303** (linker Kanal) und **L304** (rechter Kanal) so einstellen, daß der Ausgang dem Sollwert entspricht.